

Y-12

OAK RIDGE Y-12 PLANT

MARTIN MARIETTA

**MERCURY IN AMBIENT AIR
AT THE OAK RIDGE Y-12 PLANT
JULY 1986 THROUGH DECEMBER 1990**

August 1991

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**MERCURY IN AMBIENT AIR
AT THE OAK RIDGE Y-12 PLANT,
JULY 1986 THROUGH DECEMBER 1990**

R. R. Turner¹
M. A. Bogle¹
L. L. Heidel²
L. M. McCain²

August 1991

¹Environmental Sciences Division, Oak Ridge National Laboratory.

²Health, Safety, Environment and Accountability Division, Oak Ridge Y-12 Plant.

Prepared by the

Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831-8169
managed by

MARTIN MARIETTA ENERGY SYSTEMS, INC.

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CONTENTS

ACRONYMS	v
LIST OF FIGURES	vii
LIST OF TABLES	ix
1. EXECUTIVE SUMMARY	1
2. INTRODUCTION	2
3. METHODS	2
4. RESULTS AND DISCUSSION	5
5. CONCLUSIONS AND RECOMMENDATIONS	12
REFERENCES	14
APPENDIX A. SAMPLING STATION DESCRIPTIONS	15
APPENDIX B. SAMPLING PROCEDURES FOR MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT	19
APPENDIX C. CROSS CHECKS OF METHODS OF MEASURING AMBIENT AIR MERCURY LEVELS	25
APPENDIX D. TABULATION OF RESULTS FOR MERCURY VAPOR IN AMBIENT AIR (JULY 1986-DECEMBER 1990)	35
APPENDIX E. TABULATION OF RESULTS FOR PARTICULATE MERCURY IN AMBIENT AIR (JULY 1986-APRIL 1989)	67

ACRONYMS

ALARA	as low as reasonably achievable
CFR	Congressional Federal Register
CVAA	Cold Vapor Atomic Absorption
EPA	Environmental Protection Agency
ESD	Environmental Sciences Division
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOAA/ATDL	National Oceanic and Atmospheric Administration/Atmospheric Turbulence and Diffusion Laboratory
ORNL	Oak Ridge National Laboratory
PIDAS	Perimeter Intrusion Detection Assessment System
SO ₂	Sulfur dioxide
WETF	West End Treatment Facility

LIST OF FIGURES

<i>Figure</i>		<i>Page</i>
1	Locations of ambient air monitoring sites for mercury and 1988 wind rose	3
2	Assembly for ambient air mercury sampling at the Oak Ridge Y-12 Plant	4
3	Time trends in mercury vapor concentrations for five monitoring sites at the Oak Ridge Y-12 Plant and Rain Gauge No. 2 at Walker Branch Watershed	8
4	Concentrations (7-d averages) of mercury measured in air over the surface of Lake Reality using iodated charcoal tubes	11
B.1	Field data sheet for the ambient air monitoring program	22
C.1	Schematic of charcoal tube sampling apparatus used in Building 9204-1	29

LIST OF TABLES

<i>Table</i>		<i>Page</i>
1	Annual results of the Oak Ridge Y-12 Plant ambient air mercury vapor monitoring program (July 1986 through December 1990)	7
2	Results of the Oak Ridge Y-12 Plant ambient air particulate mercury monitoring program (July 1986-April 1989)	9
C.1	Results of sampling for mercury in air in Building 9201-4 using MSA charcoal tubes	30
C.2	Results of Jerome monitor measurements of mercury in air in Building 9201-4	31
C.3	Results of sampling for mercury in ambient air using impingers in Building 9201-4	32

1. EXECUTIVE SUMMARY

At the Oak Ridge Y-12 Plant, airborne mercury levels are elevated over background levels as a result of mercury vaporization from mercury-contaminated soils, fugitive exhaust from Building 9201-4 (a former lithium isotope separation facility contaminated with mercury), and releases from coal burning at the Y-12 Steam Plant. An on-site, airborne mercury monitoring program has been established (1) to provide a historical data base of mercury concentrations in ambient air, (2) to identify temporal trends in mercury vapor concentrations, and (3) to demonstrate protection of the environment and human health from releases of mercury to the atmosphere at the Y-12 Plant.

Four stations to monitor ambient mercury were established at the Y-12 Plant in mid- to late-1986 and were located at both the east and west ends of the plant and near Building 9201-4. In 1988, a control site was established on Chestnut Ridge. At each of these sites, airborne mercury is collected by pulling air through a flow-limiting orifice and an iodated-charcoal sampling tube. The charcoal tubes, which absorb the mercury vapor, are changed every 7 d. Average airborne concentration of mercury vapor is calculated by dividing the total quantity of mercury collected on the charcoal by the total volume of air sampled during the 7-d sampling period.

Except for the site at the west end of the Y-12 Plant, results indicate significant decreases (Student's *t*-test at the 1% level) in annual means for ambient mercury vapor measured at the plant sites during 1989-1990 when compared with the means for 1986-1988. The decrease in ambient mercury recorded at these sites in 1989-1990 may be related to the 80% reduction in the tonnage of coal burned at the steam plant beginning in 1989. Prior to 1989, the completion of several major engineering projects (e.g., the Perimeter Intrusion Detection Assessment, Reduction of Mercury in Plant Effluents, and Utility Systems Restoration) may also have temporarily elevated mercury air concentrations because of disturbances to contaminated soil and sediment. However, unlike the three other Y-12 Plant sites, the west-end site showed a significant increase in annual mercury vapor concentration from $0.030 \mu\text{g}/\text{m}^3$ in 1986-1988 to $0.143 \mu\text{g}/\text{m}^3$ in 1989. This increase is thought to be related to the widespread construction and accompanying earth-moving activities undertaken at the west end in 1989, resulting in increased mercury vaporization from newly exposed contaminated soils. In 1990, mercury vapor levels at this site decreased to an annual average of $0.011 \mu\text{g}/\text{m}^3$, the lowest level recorded for this site since the monitoring program was established. As might be expected, average ambient mercury levels ($0.005 \mu\text{g}/\text{m}^3$) at the control site on Chestnut Ridge showed no change between 1988 and 1989. This site was discontinued in late 1989 after a data base of background concentrations was established.

Results of the air monitoring program for mercury indicate the network is sensitive to fluctuations in levels of ambient mercury vapor caused by localized disturbances or operational changes at the Y-12 Plant. Data also show that outdoor, on-site concentrations of mercury vapor are well below the National Emission Standards for Hazardous Air Pollutants (NESHAP) guideline of $1 \mu\text{g}/\text{m}^3$ (30-d average) and the American Conference of Governmental Industrial Hygienists threshold limit of $50 \mu\text{g}/\text{m}^3$ (time-weighted average for 8-h workday and 40-h workweek).

2. INTRODUCTION

In July 1986, the Oak Ridge Y-12 Plant established a monitoring program to provide a historical data base on mercury concentrations in ambient air and to demonstrate protection of the environment and human health from releases of mercury to the atmosphere. Airborne mercury at the Y-12 Plant primarily results from vaporization of mercury in soils, burning of coal at the Y-12 Steam Plant, and fugitive exhaust from Building 9201-4, a former lithium isotope separation facility that is contaminated with mercury. This report describes the ambient air mercury monitoring program and summarizes results for the first four years and five months of data collection.

3. METHODS

The Y-12 Plant established four ambient mercury sampling stations in 1986 [stations on the east (Ambient No. 2) and west (Ambient No. 8) ends of the plant and two stations (adjacent to Buildings 9404-13 and 9805-1) near Building 9201-4] and added an additional site at New Hope Pond in late August of 1987 (Fig. 1). With the closure of the pond in December 1988, this site was moved to a new location approximately 700 ft east of the original site and operated until September 1989. In February 1988, a control site was established at Rain Gauge No. 2 (Fig. 1) on Chestnut Ridge at the Walker Branch Watershed and operated until October 1989. Complete descriptions of each sampling site are given in Appendix A.

At each of these stations, airborne mercury was collected by pulling ambient air through a Teflon filter, then through a flow-limiting orifice, and finally through an iodated charcoal sampling tube (MSA No. 459003). Figure 2 illustrates the mercury collection device used. The flow-limiting orifice was used to restrict air flow through the collection system to approximately 1 L/min or less. Particulate mercury was collected for 28 d on the Teflon filter, while mercury vapor was collected for 7 d in the charcoal absorber before tube changeout. The step-by-step sampling procedure is given in Appendix B.

The use of iodated charcoal to collect mercury vapor was first described by Moffitt and Kupel (1971) and has been evaluated by others (e.g., Braman and Johnson 1974; Schroeder and Jackson 1984; Lindberg 1980, 1981). These authors reported that iodated, activated charcoal efficiently absorbs elemental mercury vapor and most other volatile species of mercury. The capacity of the 150-mg iodated, activated charcoal tubes used in this program is 0.5 to 1.0% of the charcoal weight (75 to 150 μg of mercury). By using these tubes, Lindberg (1981) observed insignificant breakthrough at up to 20 μg total mercury loading per tube.

Mercury collected on the filters and charcoal was analyzed by cold vapor atomic absorption (CVAA) spectrophotometry after digestion in nitric-perchloric acid. The separate charcoal sections in the tubes were combined for chemical analysis. The analytical detection limit by this method as applied in the Oak Ridge National Laboratory (ORNL) Environmental Analysis Laboratory, which performed all the analyses, was 0.0005 μg . Tube blanks were measured with each new lot number of tubes and with every other batch of 24 to 30 tubes analyzed. Charcoal tube blanks were typically 0.001 to 0.002 μg , while filter blanks were always reported as <0.001 $\mu\text{g}/\text{filter}$. A private laboratory (Brooks Rand, Ltd., Seattle, Washington) verified our blanks by running a group of 10 tubes. Blanks varied from 1.11 to 3.70 ng/tube and averaged 1.82 ng/tube. The same laboratory loaded one tube with 18 μg of mercury without observing breakthrough.

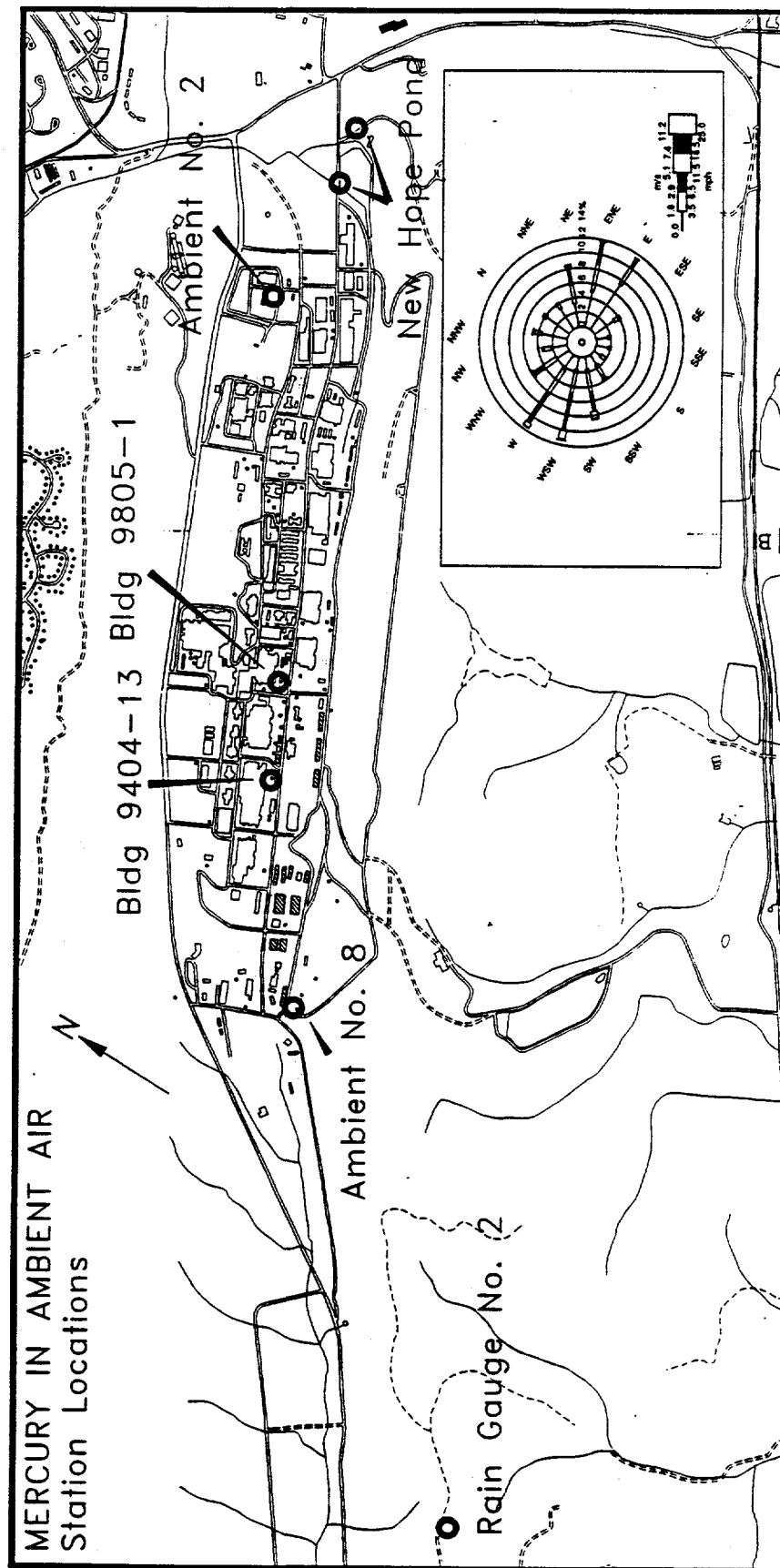


Fig. 1. Locations of ambient air monitoring sites for mercury and 1988 annual wind rose.

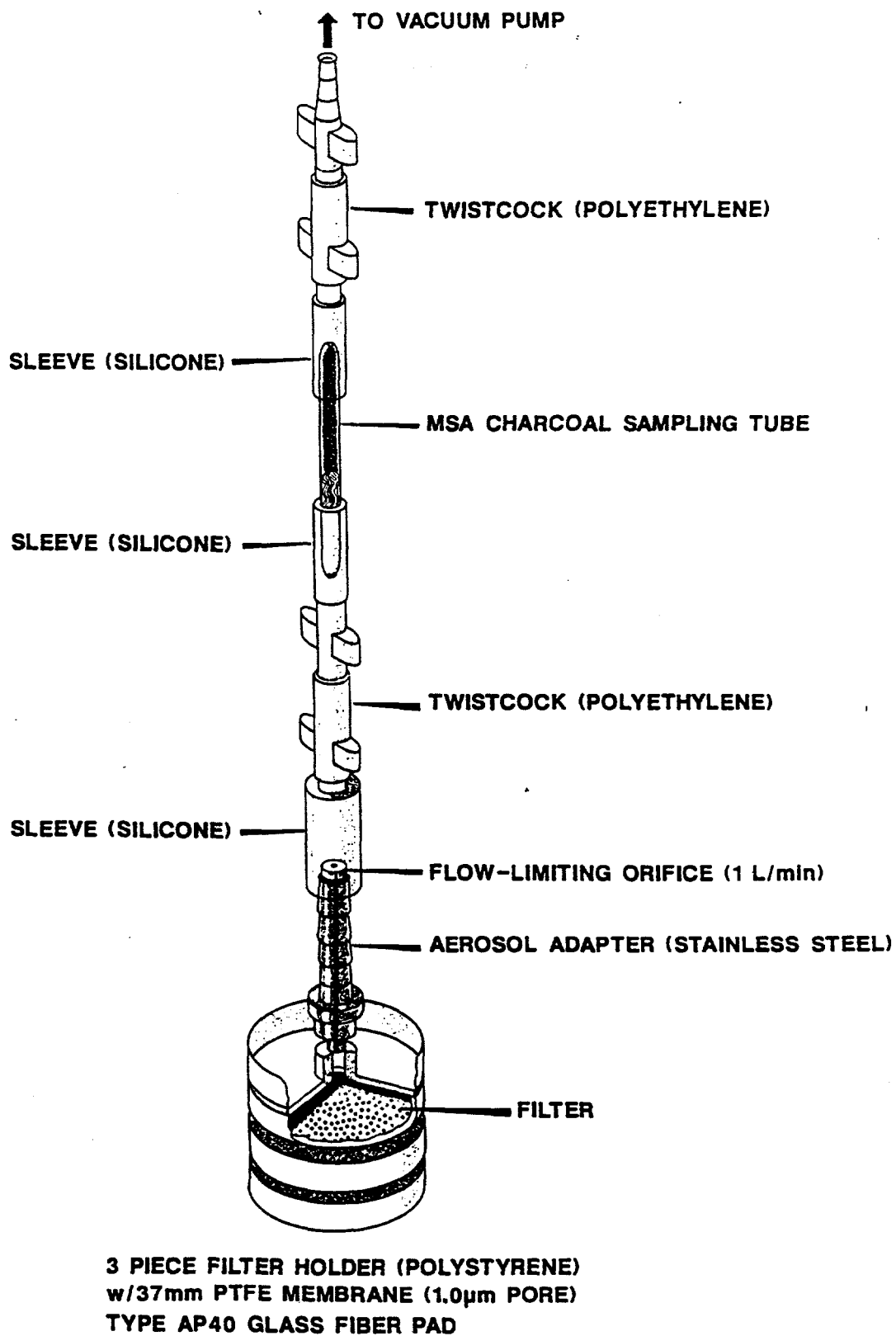


Fig. 2. Assembly for ambient air mercury sampling at the Oak Ridge Y-12 Plant.

Average air concentration during the sample collection period (7 d for vapor mercury, 28 d for particulate mercury) was calculated by dividing the total quantity of mercury collected on the charcoal and filters by the total volume (uncorrected to standard temperature and pressure) of air sampled during the sampling period. The volume of air sampled was calculated as the average of flow measurements, determined with a Gilmont Size No. 2 rotameter, taken at the beginning and end of each 7-d period. Rotameter readings varied by 25 mL/min or less from week to week except when leaks developed (rarely) or a pump failed (rarely). Beginning in February 1988, hourmeters were installed in line with the air sampling pumps to record the number of hours of actual pump operation. This allowed for a more accurate determination of volume of air sampled in case of power outages (rare). However, the hourmeters do not provide sampling time in the case of a failed pump unless the electrical circuit is tripped. Whenever doubt existed as to pump running time or air flow rate, no average mercury concentration was recorded for the week. Although no replicate air samples were collected using the charcoal tubes during this study, Lindberg et al. (in press) found the average measurement precision to be $\pm 6\%$ at concentrations of 0.004 to 0.015 $\mu\text{g}/\text{m}^3$ using the same method at the Rain Gauge No. 2 in 1990.

Included in Appendix B are the step-by-step procedures for field sampling and sample handling before submission to the Environmental Analysis Laboratory for analysis. Appendix C gives the results of evaluations of the iodated charcoal tube method in comparison with other methods of air monitoring for mercury.

4. RESULTS AND DISCUSSION

Complete tabulations of results are given in Appendix D for vapor mercury and in Appendix E for particulate mercury. Table 1 gives the annual maximum, minimum, and average concentrations of ambient vapor in air at the six sampling locations since installation. Figure 3 displays the time trends in mercury vapor concentration in ambient air at each site. The data indicate that on-site ambient mercury concentrations have been, with one exception (Ambient No. 8, October 10, 1989–October 17, 1989, 1.18 $\mu\text{g}/\text{m}^3$), well below the U.S. Environmental Protection Agency (EPA) NESHAP guideline [Congressional Federal Register (CFR) 28, No. 66, Part II] for mercury in ambient air of 1 $\mu\text{g}/\text{m}^3$ (30-d average) and the industrial hygiene workplace standard of 50 $\mu\text{g}/\text{m}^3$. The monitoring sites located southeast and southwest of Building 9201-4 have usually shown the highest concentrations of vapor mercury among the five sites located in or on the perimeter of the Y-12 Plant, although there are notable exceptions. As would be expected, the lowest concentrations of vapor mercury were measured for the control site (Rain Gauge No. 2) located on Chestnut Ridge in the Walker Branch Watershed. Concentrations of particulate mercury (Table 2) have consistently been $< 0.001 \mu\text{g}/\text{m}^3$ at all sites.

Except for the site (Ambient No. 8) at the west end of the Y-12 Plant, results (Table 1) indicate significant decreases (Student's *t*-test at the 1% level) in annual means for ambient mercury vapor measured at the plant sites during 1989–1990 when compared with the means for 1986–1988. The decrease in ambient mercury recorded at these sites in 1989–1990 may be related to the 80% reduction in the tonnage of coal burned at the steam plant beginning in 1989. Prior to 1989 the completion of several major engineering projects (e.g., the Perimeter Intrusion Detection Assessment System (PIDAS), Reduction of Mercury in Plant Effluents, and Utility Systems Restoration) may have temporarily elevated mercury air concentrations because of disturbances to contaminated soil and sediment. Lastly, the period from 1986 through 1988 was characterized by drought conditions which may have increased emission rates of mercury from

contaminated soils in the plant area. However, unlike the three other Y-12 Plant sites, the west-end site (Ambient No. 8) showed a significant increase in annual mercury vapor concentration from $0.030 \mu\text{g}/\text{m}^3$ in 1986-1988 to $0.143 \mu\text{g}/\text{m}^3$ in 1989. This increase is thought to be related to the widespread construction and accompanying earth-moving activities undertaken at the west end in 1989, resulting in increased mercury vaporization from newly exposed contaminated soils. In 1990, mercury vapor levels at this site decreased to an annual average of $0.011 \mu\text{g}/\text{m}^3$, the lowest level recorded for this site since the monitoring program was established. As might be expected, average ambient mercury levels ($0.005 \mu\text{g}/\text{m}^3$) at the control site on Chestnut Ridge (Rain Gauge No. 2) showed no change between 1988 and 1989.

Mercury concentrations in air at Rain Gauge No. 2 have ranged from 0.001 to $0.016 \mu\text{g}/\text{m}^3$, with the highest values occurring during the summer months. Background ambient air mercury concentrations for nonmineralized and nonurbanized areas of the continental United States are reported to range from 0.003 to $0.009 \mu\text{g}/\text{m}^3$ (McCarthy et al. 1970). Thus, the average value for Rain Gauge No. 2 ($0.006 \mu\text{g}/\text{m}^3$) is quite typical of background continental air. Lindberg et al. (1991) have performed a more detailed analysis of the data for this site and could not conclusively establish any effects of mercury emissions from the Y-12 Plant.

The Rain Gauge No. 2 site was established in part to take advantage of other measurements, such as sulfur dioxide, which are routinely monitored by others [National Oceanic and Atmospheric Administration/Atmospheric Turbulence and Diffusion Laboratory (NOAA/ATDL) and ORNL/Environmental Sciences Division (ESD)] at this site. The site has experienced fumigations from the Y-12 Steam Plant, as evidenced by elevated sulfur dioxide (SO_2) concentrations during meteorological conditions favorable to plume transport from the Y-12 Steam Plant stack located 2 miles northeast of Rain Gauge No. 2. However, the expected correlation between SO_2 and mercury at the site has not materialized. The long integration time (7 d) for mercury sampling probably precludes detecting a short-term event such as a fumigation (generally an overnight phenomenon of a few hours' duration). Analysis of time-integrated SO_2 samples (unpublished data provided by NOAA/ATDL) collected over the same time period (7 d) as the mercury samples has shown no correlation between mercury and SO_2 .

Air concentrations of mercury near New Hope Pond were generally slightly higher than at Ambient No. 2, which is located approximately 1800 ft to the west. The main exception occurred during the period June to early August 1988, when the New Hope Pond site exhibited relatively high air concentrations of mercury compared with previous data for the site and with the other ambient air monitoring sites. The higher concentrations (up to $0.41 \mu\text{g}/\text{m}^3$) of mercury in ambient air at the New Hope Pond site during this period appear to be anomalous for this site. However, midsummer concentrations had not been measured previously at this site (measurements began on August 19, 1987), and higher concentrations may actually be typical during midsummer. Other factors that could have contributed to this anomaly are (1) the altered operation of New Hope Pond associated with the distribution ditch and (2) the excavations for Lake Reality adjacent to the site.

**Table 1. Annual results of the Oak Ridge Plant ambient air
vapor monitoring program (1986 through 1990)**

Site	Year	N	Mercury Vapor Concentration ($\mu\text{g}/\text{m}^3$)		
			Minimum	Maximum	Average
Ambient No. 2 (east end of Y-12)	1986	34	0.003	0.058	0.011
	1987	52	0.001	0.033	0.009
	1988	52	0.003	0.036	0.010
	1989	52	0.003	0.012	0.006
	1990	51	<0.001	0.018	0.006
	1986-1990	241	<0.001	0.058	0.008
Ambient No. 8 (west end of Y-12)	1986	27	<0.001	0.034	0.017
	1987	52	0.007	0.067	0.032
	1988	52	0.007	0.407	0.041
	1989	52	0.006	1.187	0.143
	1990	50	0.002	0.025	0.011
	1986-1990	233	<0.001	1.187	0.053
Bldg. 9404-13 (SW of Bldg. 9201-4)	1986	31	0.033	0.197	0.108
	1987	52	0.044	0.465	0.174
	1988	51	0.028	0.340	0.137
	1989	52	0.024	0.250	0.101
	1990	51	0.001	0.277	0.068
	1986-1990	237	0.001	0.465	0.119
Bldg. 9805-1 (SE of Bldg. 9201-4)	1986	15	0.026	0.137	0.070
	1987	52	0.036	0.226	0.109
	1988	52	0.017	0.384	0.097
	1989	51	0.017	0.206	0.072
	1990	51	0.018	0.162	0.071
	1986-1990	221	0.017	0.384	0.086
New Hope Pond ^a	1987	20	0.006	0.039	0.016
	1988	52	0.004	0.412	0.046
	1989	37	0.002	0.009	0.004
	1987-1989	109	0.002	0.412	0.026
Rain Gauge No. 2 ^b (Chestnut Ridge)	1988	47	0.002	0.016	0.006
	1989	47	<0.001	0.015	0.005
	1988-1989	94	<0.001	0.016	0.006

^aSite discontinued September 19, 1989.

^bSite discontinued October 31, 1989.

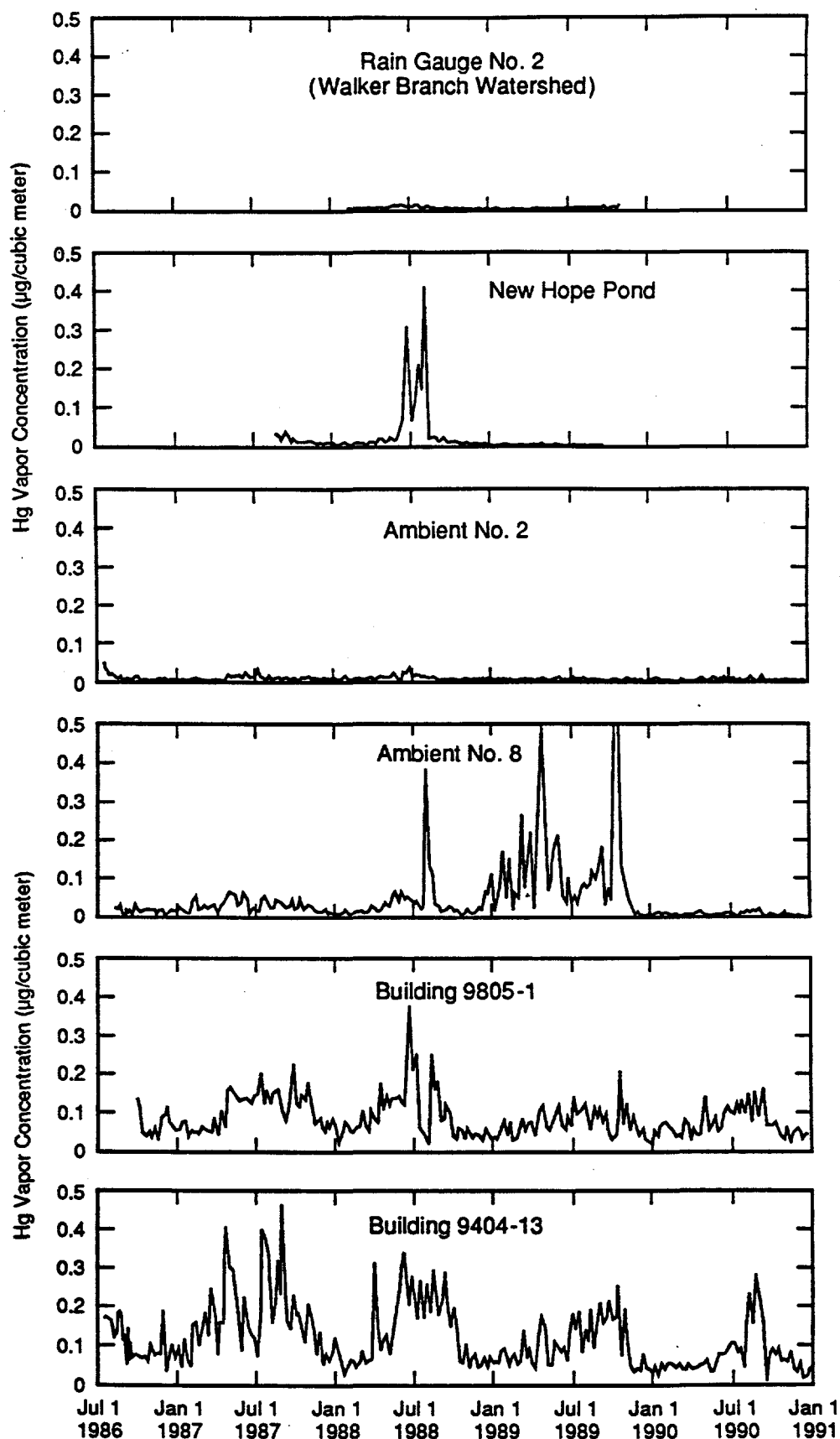


Fig. 3. Time trends in mercury vapor concentrations for five monitoring sites at the Oak Ridge Y-12 Plant and Rain Gauge No. 2 at Walker Branch Watershed.

**Table 2. Results of the Oak Ridge Y-12 Plant ambient air
particulate mercury monitoring program
(July 1986 through April 1989)**

Site	Sampling period	Particulate Hg concentration ($\mu\text{g}/\text{m}^3$)			
		N	Max	Min	Av
Ambient No. 2 (east end of Y-12)	18JUL86-18APR89	34	0.00079	0.00001	0.00006
Ambient No. 8 (west end of Y-12)	12AUG86-18APR89	33	0.00068	0.00002	0.00007
Bldg. 9404-13 (SW of Bldg. 9201-4)	15JUL86-18APR89	34	0.00084	0.00002	0.00018
Bldg. 9805-1 (SE of Bldg. 9201-4)	23SEP86-18APR89	33	0.00039	0.00002	0.00011
New Hope Pond	19AUG87-18APR89	22	0.00082	0.00001	0.00024
Rain Gauge No. 2 (Chestnut Ridge)	9FEB88-18APR89	15	0.00007	<0.00001	0.00003

*N=number of observations

Beginning in June 1988, parts of the distribution ditch for inlet to New Hope Pond were valved out of the system to permit construction of a concrete-lined bypass around New Hope Pond. Flow into the pond normally entered the pond via the distribution ditch through 14 pipes along the south and east margins of the pond. During construction in June to November 1988, the distribution ditch was progressively eliminated, thus forcing the pond inflow to enter the pond via the upstream spillway only. This flow pattern tended to reduce circulation of water in the pond and affected the efficiency of the pond as a trap for mercury and other contaminants. Thus, it is possible that water with greater quantities of volatile (elemental) mercury reached the area of the ambient air monitor at the pond outlet. Operation of the aerator near the pond outlet would have facilitated any volatile mercury reaching the monitor, because the aerator was located less than 50 ft from the monitor.

Excavations for Lake Reality involved moving about 30,000 yd³ of earth. Although no comprehensive analyses have been performed, a few scattered analyses (unpublished) have revealed that some of this earth may have been slightly contaminated with mercury. For example, R. R. Turner collected a single sample of "gray fill material" encountered during Lake Reality excavations that contained mercury at 130 $\mu\text{g}/\text{g}$ (see Y-12 Plant Laboratory results for Request A-17156). The material had the appearance of coal ash and was also elevated in total uranium (58 $\mu\text{g}/\text{g}$). This provides circumstantial evidence that the area excavated for Lake Reality was originally filled at least partially with waste or construction spoil from the Y-12 Plant. Thus, some possibility exists that a temporary source of volatile mercury was exposed during excavation and may have resulted in higher-than-normal mercury levels in air near the construction site. The Y-12 Industrial Hygiene Department investigated the excavation site for airborne mercury above allowable levels (50 $\mu\text{g}/\text{m}^3$) but could not detect mercury with the field instruments used (Jerome Model 411 with a 1- $\mu\text{g}/\text{m}^3$ detection limit).

One other factor may have contributed to the elevated ambient air levels of mercury at New Hope Pond during the summer of 1988. Natural bacterial communities can reduce mercuric ion to elemental mercury and, thereby, volatilize mercury from a water body. Research supported by the U.S. Department of Energy's Office of Technology Development and by the EPA has demonstrated a major role for bacteria living in New Hope Pond and Lake Reality in the reduction and volatilization of mercury (Barkay et. al 1991). August 1988 results from this project showed that volatilization of mercury was higher in New Hope Pond outflow samples than has been observed subsequently at this site, suggesting that the activity of bacteria that can reduce and volatilize mercury may have been especially high during this period (possibly caused by the more stagnant conditions in the pond). Subsequent measurements (January- November 1990) of dissolved gaseous mercury in Lake Reality water and of gaseous mercury in air directly over Lake Reality (Fig. 4) have also demonstrated that evasion of mercury from upper East Fork Poplar Creek and Lake Reality may affect local ambient air concentrations of mercury.

Mercury concentrations at Ambient No. 8, located at the west end of the Y-12 Plant, have been higher than those at Ambient No. 2, located at the east end of the Y-12 Plant. Prior to August 1988, mercury concentrations at this site varied over only a limited range. Three values for August 1988 seemed initially to be anomalous for this site. In fact, there is a possibility that the charcoal tubes for this period could have been mislabelled or interchanged with the tubes from the Building 9805-1 site because tubes from Building 9805-1 (Fig. 1) were unusually low for this same period (week of October 17, 1989).

The Ambient No. 8 site also subsequently produced the highest mercury concentration ($1.18 \mu\text{g}/\text{m}^3$) observed during this study. This observation represents the only occurrence of an ambient air concentration which exceeded the NESHAP criterion of $1 \mu\text{g}/\text{m}^3$. The NESHAP criterion is established for a 30-d average and this single observation represented only a 7-d average.

The highly variable concentrations of mercury at Ambient No. 8 beginning in late December 1988 and continuing into November 1989 when the variability abruptly ceased are noteworthy for this site. This trend at Ambient No. 8 may have been related to earth-moving activity east of the site associated with the PIDAS Project or other construction activity in the area that may have exposed mercury-contaminated soil. The data clearly indicate the appearance of a new source of mercury in the area. Elemental mercury was observed and removed in the PIDAS excavations at two locations east of the air monitoring site in the period February through May 1988, a year earlier. Rust Engineering was also in the process of installing a 10-in. water line near Portal 17 during the time of this increasing trend in mercury concentration. This work was located several hundred feet to the north of the monitoring site.

The Ambient No. 8 site is also located within a few hundred feet of the West End Treatment Facility (WETF), a wastewater treatment plant which employs biodenitrification, among other processes. Mercury vapor has been detected (1 to $5 \mu\text{g}/\text{m}^3$) in the offgases from this facility; thus, operations at this facility may impact air quality at Ambient No. 8.

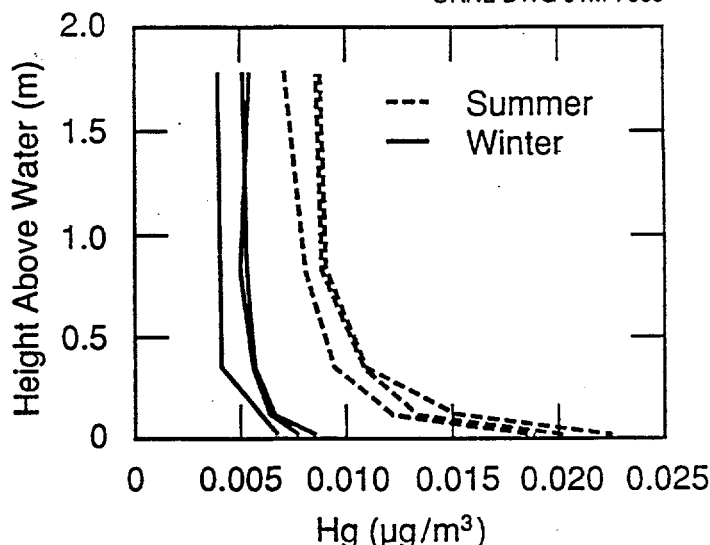


Fig. 4. Concentrations (7-d averages) of mercury measured in air over the surface of Lake Reality using iodated charcoal tubes. Winter profiles are for the period January–February 1990; summer profiles are for the period July–September 1990.

Mercury concentrations in outdoor air at the Building 9404-13 and Building 9805-1 sites exhibited the highest average concentrations (0.119 and $0.086 \mu\text{g}/\text{m}^3$, respectively) among all sites. Concentrations were typically higher during spring and summer than during the cooler periods. These monitoring sites are located, respectively, southwest and southeast of Building 9201-4, the former lithium isotope separation facility that still contains mercury-contaminated process equipment. The sites represent the nearest outdoor monitoring points for any fugitive emissions from Building 9201-4 and were deliberately located east and west of this building to be within the plume of this building whenever the wind was blowing up or down valley, the most common directions. Air monitoring data (Turner et al. 1989) collected inside Building 9201-4 have shown a strong temperature dependence, with the highest concentrations of mercury occurring in July and August. Because of the very complex artificial terrain (buildings) in the Y-12 Plant area, it is not clear whether the outdoor monitoring points actually intercept any mercury plume from Building 9201-4.

The situation is further complicated by the fact that the Y-12 Steam Plant is located immediately south of Building 9201-4 and emits approximately $35 \text{ kg}/\text{year}$ of mercury vapor (assuming $70,000 \text{ kg}$ of coal are burned per year with $0.5 \text{ mg Hg}/\text{kg}$ coal) through stacks that are only 100 ft tall. Beginning in December 1988, the Y-12 Steam Plant began using natural gas for 80% of its fuel to produce steam as part of a program to reduce the production of coal ash requiring disposal. This reduction in coal usage would certainly reduce the emission of mercury vapor from the Y-12 Steam Plant because natural gas contains much less mercury than coal on a unit heat value basis. Fugitive and stack emissions from the Y-12 Steam Plant may account for some of the elevated mercury concentrations in ambient air at the monitoring points at Buildings 9404-13 and 9805-1 or elsewhere. However, because much more coal is burned in the winter, the higher summer concentrations at the ambient air monitoring stations are inconsistent with an exclusively coal combustion source for the mercury.

Beginning in 1986, efforts were begun to reduce or eliminate fugitive mercury emissions from Building 9201-4. These efforts included altered operations and removal of the ventilating fans. For much of the period of outdoor monitoring for mercury, no ventilating fans have been operated, and the building has experienced relatively little air exchange.

5. CONCLUSIONS AND RECOMMENDATIONS

The data for mercury in ambient air at the Y-12 Plant suggest that the environment and human health are being protected from releases of mercury to the atmosphere. With only one exception, the highest observed concentrations (7-d average) at any monitored site have been <50% of the NESHAP criterion ($1.0 \mu\text{g}/\text{m}^3$) and <1% of the industrial hygiene standard of $50 \mu\text{g}/\text{m}^3$. These criteria (1.0 and $50 \mu\text{g}/\text{m}^3$) are intended to protect both off-site human populations that are exposed continuously and on-site workers exposed for 8-h work shifts 40 h/week, respectively. The data do show that ambient air mercury concentrations in the Y-12 Plant area are elevated above natural background and may reach greatly elevated concentrations for short periods in very localized areas. Although the present monitoring program is sensitive to fluctuations in levels of ambient mercury vapor caused by local disturbances and operational changes at the Y-12 Plant, it is inadequate to pinpoint areas within the Y-12 Plant where mercury concentrations may be greatly elevated or to determine the magnitude and duration of these excursions. Additional monitoring sites operated on a weekly integration period would not improve this situation. Rather, a program aimed at obtaining air samples at short integration times (e.g., 8 h) at a large number of sites during hot weather would more likely pinpoint sources and yield better estimates of the magnitude and duration of excursions. If available, the use of a real-time monitor with sufficient sensitivity to quantitate submicrogram-per-cubic-meter concentrations of mercury vapor would provide an even better evaluation of sources, magnitudes, and durations. At present, no such instrument is commercially available. Passive (no air pump) mercury vapor monitors intended for personnel monitoring are available, and similar passive monitors for ambient air monitoring are under development by the private sector.

Based on the results of this study, the following recommendations are offered.

1. The Y-12 Plant should adopt the ALARA (as low as reasonably achievable) approach with regard to mercury vapor in air. Results from the existing monitoring program and from the special investigations suggested below should be used to identify and reduce sources of atmospheric releases of mercury vapor. Although the existing data suggest that human health is being protected, the same sources of mercury that contribute to elevated ambient air levels may also contribute to soil and surface-water contamination. Identifying and cleaning up these sources would be environmentally beneficial.
2. The existing monitoring system (five sites within the Y-12 Plant) should be expanded slightly to include one or two additional monitors along the base of Pine Ridge (north of Bear Creek Road). Although wind direction is typically up or down valley, the nearest dense population center is northwest of the Y-12 Plant across Pine Ridge (i.e., Gamble Valley/Scarboro community). The proposed additional sites would thus provide estimates of ambient air mercury concentrations to which people in this community could be exposed.
3. Several comprehensive synoptic surveys of mercury in ambient air should be conducted over 8-h time intervals during hot weather. These surveys should entail a sufficient number of air sampling points to permit identification of "hot spots" within the plant. Perhaps 20 to 50 sites could be reasonably operated simultaneously for this kind of survey. The sites should be initially concentrated around buildings or areas associated with historic mercury use. A combination of 110-VAC and battery-operated air pumps used to pull air through charcoal tubes, plus portable windsets to record wind speed and direction during sampling, represents one approach to this kind of survey.

4. The use of passive mercury vapor monitors should be investigated as a simple means to identify mercury sources within the Y-12 Plant. These monitors require no air pump and can be hung nearly anywhere for days to weeks in the same manner that radon monitors are deployed. Such passive monitors are already available for personnel monitoring and are under development for ambient air monitoring.
5. Collection and analyses of samples for particulate mercury in ambient air at the Y-12 Plant have revealed only very low to undetectable particulate mercury, suggesting that resuspension of mercury-contaminated soil is not a current issue at the Y-12 Plant. These analyses, which cost about \$5000 per year, were discontinued in April 1989, but the air filters have continued to be used (changed monthly) (1) to provide samples in the event analysis seems warranted because of unusually dusty conditions and (2) to protect the critical flow orifice from clogging. Because the filters are unlikely to contain significant volatile mercury, they are being stored at room temperature for six months without concern for mercury losses. This practice should be continued.

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APPENDIX A
SAMPLING STATION DESCRIPTIONS



APPENDIX A

SAMPLING STATION DESCRIPTIONS

AMBIENT NO. 2 - West of Building 9712 (Y-12 Plant Garage)

The station designated as Ambient No. 2 is located in the parking area at the Oak Ridge Y-12 Plant Garage and adjacent to Building 9989, which housed the East SO₂ Monitor until its removal in August 1990. The approximate coordinates of the site are E62100 and N29950. The mercury monitor uses the same air pump used for sampling for fluoride, uranium, and other constituents. A tee and valve allow the mercury monitor to be shut off for servicing. The charcoal tube and Teflon filter assembly are located beneath the pump shelter and are connected to the pump via tubing running through the bottom of the shelter. The inlet to the filter is about 2 ft above the ground surface. The filter and charcoal tube were located outside the shelter to avoid the higher temperatures inside the pump shelter.

AMBIENT NO. 8

The site identified as Ambient No. 8 is located at the west end of the Y-12 Plant adjacent to Building 9990, which housed the West End SO₂ Monitor until its removal in August 1990. The approximate coordinates of the site are E52670 and N29690. The air pump is housed in Building 9990, but the mercury monitor is attached to the external instrument shelter that houses other air monitoring equipment. The inlet to the filter is located beneath the small shelter about 2 ft above the ground surface, which is grassed in this area. A heavily traveled road (West Third Street near Portal 17A) is located 50 ft to the north.

BUILDING 9805-1

The site designated as Building 9805-1 is located at the northwest corner of Building 9805-1, adjacent to the concrete walkway running past the west end of this building. The approximate coordinates of the site are E56940 and N29910. The monitor is housed completely in a wooden instrument shelter with louvered sides. The ground surface beneath the shelter is covered with gravel, and the immediate area is paved with concrete and asphalt. There is extensive overhead piping at the site.

BUILDING 9404-13

The site identified as Building 9404-13 is located immediately south of Building 9201-5 and west of Building 9404-13. The approximate coordinates of the site are E55740 and N29950. The monitor is housed completely inside a wooden instrument shelter with louvered sides. This ground surface beneath the shelter is concrete, and the immediate area is covered with gravel and asphalt.

NEW HOPE POND

The station designated as New Hope Pond was located 300 ft northeast of the former New Hope Pond and adjacent to a utility pole from which hangs a Hi-Vol Air Sampler. The coordinates of the site are E64300 and N29000. The monitor was located at this site from December 27, 1988, until September 19, 1989. The monitor was housed entirely inside a wooden

instrument shelter with louvered sides. The ground surface beneath the monitor was grassed. This monitor was initially located at the outfall of New Hope Pond and operated there from August 19, 1987, until December 27, 1988. At this location the monitor was housed in an aluminum shelter mounted on the guard rail above the Cipolletti weir. The air inlet was beneath the shelter and about 40 ft from the pond aerator. The coordinates of this former site were E63570 and N29130.

RAIN GAUGE NO. 2

The mercury monitor at Rain Gauge No. 2 on Walker Branch watershed is located in a wooden instrument shelter with louvered sides. The shelter is located outside the edge of a concrete pad, which supports other rain sampling and meteorological equipment. The ground in the area is grassed. The approximate coordinates of the site are E45600 and N27720.

APPENDIX B

**SAMPLING PROCEDURES FOR MERCURY VAPOR
IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT**

APPENDIX B

SAMPLING PROCEDURES FOR MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SYNOPSIS OF METHOD

Mercury is collected on charcoal absorbers (vapor mercury) and Teflon filters (particulate mercury) by pulling ambient air through these media at measured flow rates for 7-d (vapor mercury) and 28-d (particulate mercury) periods. Air is passed first through the Teflon filter and then into the charcoal absorber. A flow-limiting orifice is used to restrict air flow to not more than 1000 mL/min. Actual flow rates are measured with a rotameter at the inlet side of the filter holder at the beginning and end of each collection period for vapor mercury and at weekly intervals for particulate mercury. Filters and charcoal absorbers are submitted to the ORNL Environmental Analysis Laboratory for digestion in nitric-perchloric acid followed by CVAA spectrophotometry (EPA Method 245.1). Average air concentration during the period of sample collection is calculated by dividing the total quantity of mercury on the charcoal absorber or Teflon filter by the total volume (uncorrected to standard temperature and pressure) of air sampled.

SAMPLING EQUIPMENT

1. Rotameter, Gilmont Size No. 2, with calibration chart.
2. MSA Charcoal Sample Collection Tubes (Part No. 459003).
3. Millipore 37-mm Aerosol Analysis Monitors with 1.0- μ m pore size Fluoropore filters and type AP40 Microfiber Glass Disc support pads.
4. Silicone rubber tubing to connect rotameter for flow measurements.
5. Indelible marking pen.
6. Watch or other timepiece.
7. Small tweezers to break off tips of glass charcoal tubes.
8. Small plastic bags for used filter holders, rotameter, and tubing.
9. Small field notebook and pen.
10. Field data sheet for ambient air mercury monitoring (see Fig. B.1).
11. Small plastic toolbox to transport above items.

AMBIENT AIR MERCURY MONITORING - FIELD DATA SHEETS

[illegible]

Remarks:

Fig. B.1. Field data sheet for the ambient air monitoring program.

STEP-BY-STEP PROCEDURE

1. On arrival at the monitoring location, measure air flow rate by installing the rotameter on the inlet side of the filter holder by using the silicone tubing. With the rotameter held steady and vertical, record in the notebook the reading for the center of the ball to the nearest one-half scale division (e.g., 48.5), the monitoring site, the time, and the hourmeter reading.
2. Turn off the vacuum pump (or valve out the mercury sampling train).
3. On a weekly schedule, replace the charcoal tube with a fresh tube. After removing the used tube, place an orange plastic cap (supplied with each tube by MSA) on each end of the used tube. Label the used tube by writing (with indelible marker) the site name, start date, and stop date on one of the orange caps. Prepare a new tube for use by breaking off the glass tips with the tweezers to protect fingers from broken glass. Carefully insert the new tube in the holders by using the arrow printed on the side of the tube to properly align the tube with respect to direction of air flow. Reinstall the new tube with holders into the sampling train, again observing arrows for proper position. To minimize opportunities for contamination, do not let any part of the sampling train touch the ground.
4. On a monthly (28-d) schedule, replace the filter holder with a new holder. Seal the used holder with the red and blue plugs provided with the new holder. Label the used holder with the site name, start date, and stop date by using the indelible marker. Place the used filter holder in a clean plastic bag. Install the new filter holder in the sampling train, observing proper alignment with respect to flow direction.
5. Restart pump (or open valve).
6. Install rotameter as in Step 1, measure flow rate, and record on data sheets with station name and time.
7. Transport and store used charcoal tubes in a small plastic bottle. Submit to Analytical Laboratory after accumulating tubes for a 4-week period.
8. Transport and store used filter holders in double-layer plastic bags. Submit to the Analytical Laboratory within 24 h of collection, along with the charcoal tubes collected during the same 4-week period.
9. Protect both used charcoal tubes and filters from excessive heat (temperatures $>25^{\circ}\text{C}$).
10. In the event that air flow rate decreases by more than 25% prior to the full 28-d sampling period for particulate mercury, replace the filter holder with a new one as soon as the low flow is detected.

APPENDIX C

**CROSS CHECKS OF METHODS OF MEASURING
AMBIENT AIR MERCURY LEVELS**

APPENDIX C

CROSS CHECKS OF METHODS OF MEASURING AMBIENT AIR MERCURY LEVELS

RESULTS OF AIR SAMPLING FOR MERCURY IN BUILDING 9201-4, AUGUST 1986

The purpose of this section is to document mercury vapor sampling tests run in Building 9201-4 on August 22 and 26, 1986. These tests were conducted to compare results from three methods of measuring mercury in air: (1) use of a Jerome Model 411 Gold Film Monitor, (2) use of MSA Mercury Vapor Sampling Tubes (charcoal) with analysis by digestion and CVAA (EPA Method 245.1), and (3) use of the EPA Impinger Method 301 (40 CFR Pt. 61, App. B).

METHOD SUMMARIES

1. The Jerome method entailed taking instantaneous readings with a Model 411 monitor at intervals over the duration of air sampling by the charcoal tube and impinger methods. The Model 411 unit accumulates mercury vapor on an internal gold film during a 10-s sampling period and then uses the change in electrical resistance of the film to calculate and read out directly the air concentration of mercury in milligrams per cubic meter. The internal air pump operates at 750 mL/min; thus, only 125 mL of air is passed over the film during a 10-s sampling period. The minimum detectable concentration is 0.001 mg/m³.
2. The charcoal tube method entailed drawing air through small glass tubes containing 150 mg of iodated, activated charcoal. The tubes are manufactured by MSA Inc. and have been shown to be >95% efficient in absorbing elemental mercury vapor plus most other volatile species of mercury. The charcoal can be analyzed for mercury in any of several ways, but for these tests the charcoal was digested in acid followed by analysis by CVAA (EPA Method 245.1). Analytical blanks for the charcoal are typically only slightly above the instrumental detection limit of 0.0005 µg, and thus the overall method sensitivity depends mainly on the volume of air sampled. The smallest volume of air sampled during these tests was ~0.1 m³, which yields an effective detection limit in air of ~0.01 µg/m³. The capacity of the tubes is reported (Lindberg 1981) to be 0.5 to 1% of the charcoal weight, meaning that each tube can absorb from 75 to 150 µg of mercury before becoming saturated. For these tests, two tubes were used in series and analyzed separately to test for breakthrough. All tests were run in duplicate, with two tubes open directly to the air and two tubes mounted downstream of 37-mm Fluoropore (Teflon) filters. Flow rates were limited to <1000 mL/min by a critical orifice and were measured directly with a Gilmont variable area rotameter.
3. The impinger method used a stack sampling apparatus modified simply by removing the probe and heated box so that air was drawn directly into an impinger train. In all other respects the method is identical to EPA Method 301, which is intended for application to stack emissions from chlor-alkali plants. Mercury is absorbed in a solution containing iodine chloride and then analyzed by EPA Method 245.1 (CVAA).

LOCATIONS AND ARRANGEMENT OF SAMPLING EQUIPMENT

Tests were run for 2- and 4-h periods in the north end of one of the tray rooms in Building 9201-4. The air intakes for all sampling equipment were positioned within 1 ft of each other and about 2 ft above the floor of the elevated gangway around the trays. To minimize recycling of pumped air, the air pumps for the impinger and charcoal trains were located on the concrete floor about 12 ft below the samplers.

Two complete impinger trains were run for each test. Each train consisted of three impingers containing 200 mL each of an iodine chloride solution to absorb the mercury vapor. The contents of these impingers were weighed and analyzed for mercury, in milligrams per liter. This value, when multiplied by the amount of solution in the impingers and divided by the recorded volume of air drawn through the train, yielded an average mercury concentration in air for the sampling period.

Four charcoal tube trains were run for each test, with each pair (filtered/unfiltered) connected through a Y-joint to one air pump (Gast Model 1531-107B-G288X). One side of the Y was connected to an unfiltered charcoal train and the other side to a filtered train (Fig. C.1). In the former case, the critical orifice was installed downstream of both charcoal tubes. In the latter case, the critical orifice was installed between the filter and the first charcoal tube. Flow rates were measured by briefly connecting the rotameter to the inlet side of each train. The inlet tube of the Jerome monitor was held near the other inlets during periodic measurements with this portable instrument.

The test on August 26 was conducted on the roof of Building 9201-4 on the north side of the building. Sampling equipment was set up under a suspended duct about 20 ft from an open doorway. The impingers were arranged identically to the indoor tests. The charcoal tube arrangement was similar to the indoor arrangement except that only one tube was used per train and only filtered samples were collected.

RESULTS

Table C.1 summarizes charcoal tube results for all the tests. With one exception, flow rates remained constant over the duration of the charcoal tube tests. The exception was one of the unfiltered tube trains on August 22, 1986 (shown as Test 8 in Table C.1). Flow rate on this train started low (0.60 mL/min) and continued to decrease slowly for the first half of the test, in spite of replacing both the pump and charcoal tubes. The problem was finally traced to partial blockage of the critical orifice on this train. After cleaning the orifice, the flow rate was similar to that of the other trains and remained steady for the balance of the test. Air volume sampled by the train was calculated as the average of the average flow during the first half of the test and the last half of the test.

In both 2- and 4-h tests, the average of the unfiltered charcoal train results is slightly greater (51 vs 47 $\mu\text{g}/\text{m}^3$ and 41 vs 37 $\mu\text{g}/\text{m}^3$) than the average of the filtered charcoal train results, but the differences are not statistically significant. The results suggest that mercury in the vapor form constituted > 90% of the total air concentration. The filters were not analyzed on the assumption that insufficient mercury was collected to detect analytically. None of the second charcoal tubes on each train contained significant amounts of mercury (0.002 to 0.005 μg), indicating insignificant breakthrough of mercury captured by the first tube.

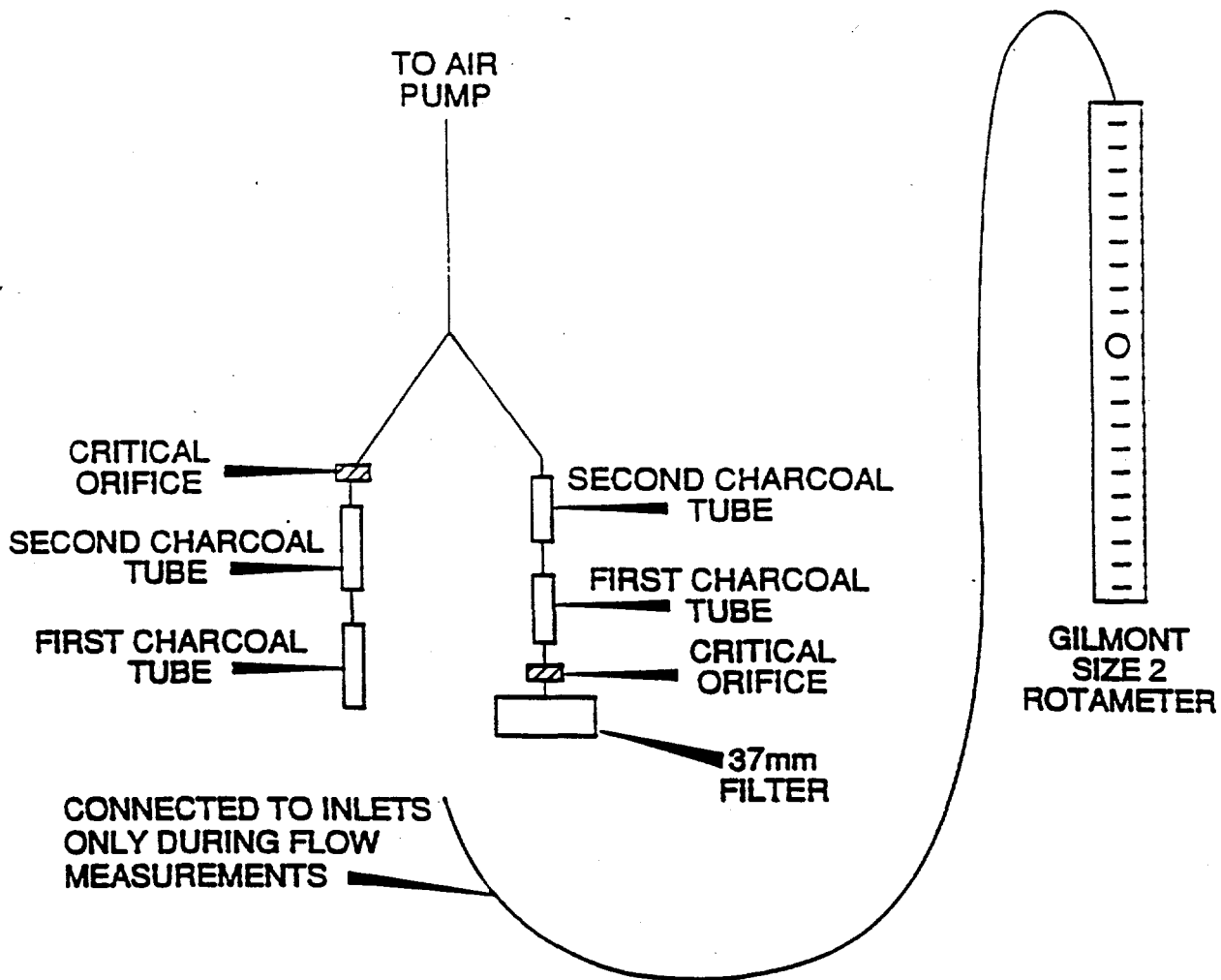


Fig. C.1. Schematic of charcoal tube sampling apparatus used in Building 9204-1.

**Table C.1. Results of sampling for mercury in air in Building 9201-4
using MSA charcoal tubes**

Test no.	Filter	Start date	Start time	Elapsed time (min)	Total flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
1	Filtered	8/22/86	09:24	120	0.107	5.1	48.0
2	Unfiltered	8/22/86	09:24	120	0.101	4.8	48.0
3	Filtered	8/22/86	09:24	120	0.103	4.8	46.0
4	Unfiltered	8/22/86	09:24	120	0.101	5.4	54.0
5	Filtered	8/22/86	12:32	240	0.214	8.1	38.0
6	Unfiltered	8/22/86	12:32	240	0.202	7.8	39.0
7	Filtered	8/22/86	12:32	240	0.204	7.3	36.0
8	Unfiltered	8/22/86	12:32	240	0.161	6.9	43.0
9	Filtered	8/26/86	08:10	480	0.413	0.20	0.48
10	Filtered	8/26/86	08:10	480	0.403	0.21	0.51

Results of measurements obtained with the Jerome monitor are given in Table C.2. Because of problems with the Jerome during the test on August 26, 1986, only a few measurements were possible. The average of these measurements was 3 μg/m³ (data not given in Table C.2). The averages given in Table C.2 are for all data, regardless of frequency of measurement. Different averages can be obtained by limiting the values included to only those obtained at the same or similar intervals. Replicate measurements at 15-min intervals were planned but could not be carried out because of the rapid approach to saturation of the gold film in the Jerome. In spite of these limitations, the Jerome results compare reasonably well with the charcoal tube results. For the 2-h test, the comparison is excellent (56 vs 51 μg/m³). The comparison for the 4-h test is only fair (31 vs 41 μg/m³), perhaps because the Jerome average does not reflect the true average over the sampling period. Time-weighted average Jerome values (51 and 32 μg/m³ for the 2- and 4-h tests, respectively) give slightly better agreement. Note the extreme variations in concentration that are apparently caused by variation in ventilating fan operation. Also, the average charcoal value used in this comparison is for the unfiltered trains, one of which experienced the difficulty described above.

Table C.3 summarizes results obtained by using the impinger trains. No results are given for the August 26 test on the roof of Building 9201-4 because mercury concentrations in the impinger solutions from this test were below the minimum detectable limit of 0.05 mg/L. The impinger results agree reasonably with the charcoal tube and Jerome results. For example, the average (55 μg/m³) of the two impinger runs for the 2-h test compares favorably with the average (51 μg/m³) for the unfiltered charcoal tubes and the average (56 μg/m³) for the Jerome readings. Likewise, the 4-h test results (40, 31, and 36 μg/m³, respectively, for charcoal tubes, Jerome, and impingers) are reasonably comparable, considering the high variability associated with the Jerome readings.

**Table C.2. Results of Jerome monitor measurements of mercury
in air in Building 9201-4**

Date	Time	Number of findings	Average value ($\mu\text{g}/\text{m}^3$)	Comments
8/22/86	09:24	1	68	
	09:29	1	68	
	09:31	1	61	
	09:35	1	50	
	09:45	1	66	
	10:00	1	75	
	10:15	1	71	
	10:30	1	27	
	10:45	1	25	
	11:00	1	21	
	11:15	1	56	
	11:20	1	67	
	11:25	1	<u>78</u>	
			56	Mean for 2-h test
8/22/86	12:32	1	61	
	12:37	1	91	
	12:50	1	78	
	12:52	1	87	
	13:10	1	22	Fan running
	13:11	1	10	
	13:16	1	4	
	13:26	1	1	
	13:28	1	0	Fan off
	13:31	1	5	
	13:34	1	7	
	13:42	1	25	
	13:50	1	21	
	14:00	1	10	

Table C.2. (continued)

Date	Time	Number of findings	Average value ($\mu\text{g}/\text{m}^3$)	Comments
	14:10	1	15	
	14:24	1	14	
	15:00	1	0	
	15:02	1	1	
	15:30	2	34	
	15:40	4	75	
	16:11	2	56	
	16:30	2	<u>64</u>	
			31	Mean for 4-h test

Table C.3. Results of sampling for mercury in ambient air using impingers in Building 9201-4

Site	Start date	Start time	Elapsed time (min)	Total flow (m^3)	Analyte Hg (μg)	Average Hg ($\mu\text{g}/\text{m}^3$)
9201-4	8/22/86	09:24	120	2.289	152	66
9201-4	8/22/86	09:24	120	2.302	100	44
9201-4	8/22/86	12:32	240	4.598	142	31
9201-4	8/22/86	12:32	240	4.653	190	41

CONCLUSIONS

The three methods of measuring mercury concentrations in air appear to yield comparable results, at least for air concentrations near the workroom standard ($50 \mu\text{g}/\text{m}^3$). A more rigorously designed and conducted comparison would be necessary, however, to prove equivalency on a sound statistical basis. The Jerome and the impinger methods proved to be too insensitive to be useful as independent checks on ambient air mercury concentrations, and thus other methods had to be found to independently verify the performance of the charcoal tube method (see next section).

The issue of filtered vs unfiltered use of the charcoal tubes was not clearly resolved in these tests, either. All ambient air monitoring sites for mercury have employed filters, which are changed and analyzed on a monthly basis. Central to this issue is whether information on particulate mercury concentrations in ambient air will ever be required. Particulate mercury data (see Appendix E) for the 40-month period of observation indicate that mercury simply did not occur significantly in particulate form in ambient air.

RESULTS OF AIR SAMPLING AT NEW HOPE POND USING GOLD TRAPS

With the cooperation of Nicolas Bloom of Pacific Northwest Laboratory, the use of iodated charcoal mercury traps to collect air mercury was compared to the use of gold traps. The comparison was carried out twice (November 17-18, 1988, and December 20-27, 1988) at the New Hope Pond monitoring site. The actual site for the November sampling was located immediately east of New Hope Pond.

In these comparisons, iodated charcoal absorbers were run adjacent to gold absorbers (gold-plated sand) developed by Fitzgerald and Gill (1979). Total air flow for the gold absorber trains was measured with a mass flow meter during the November sampling and with the rotameter endpoints method during the December sampling. To keep the amount of mercury absorbed to the gold traps as low as possible (necessary because of the sensitivity of the method), three gold traps were used sequentially in November and seven gold traps in December. Mercury trapped by the gold was quantitated by using thermal desorption with detection by fluorescence spectrometry.

For the November 17-18 test, the charcoal trap yielded an ambient air concentration of $6 \text{ ng}/\text{m}^3$. The three gold traps yielded a flow-weighted average of $1.3 \text{ ng}/\text{m}^3$. Both these values are lower than typical values (8 to $30 \text{ ng}/\text{m}^3$) for this site. The wind was light and mostly blowing from the east (i.e., upwind of the Y-12 Plant) during this special sampling and may explain the lower-than-expected concentrations. The reason for the large difference between gold and charcoal traps is unknown. Analyses of blanks for both methods revealed that they were within normal ranges. Errors in estimating total volume of air sampled could affect the results of either method, but the air flow rates, unfortunately, were not cross-checked.

For the December 20-27 test, the flow-weighted average for three charcoal tubes run sequentially (December 2-22, 22-24, and 24-27) was $7 \text{ ng}/\text{m}^3$. Heavy rain occurred throughout the sampling period, necessitating changing the tubes more frequently than planned because of suspected penetration of moisture into the tubes. The routine sampling system at this site was

operated simultaneously during this test and also yielded 7 ng/m³ for the weekly average. The gold traps, which were changed daily (total of seven traps), yielded a flow-weighted average mercury concentration of 8 ng/m³, in good agreement with the charcoal trap results.

Overall, the evaluation of the performance of the charcoal traps suggests that these convenient absorbers give results comparable to gold absorbers. As previously mentioned above, the reason for the poor agreement for the November test is unknown but may not be due to inherent problems with either method.

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APPENDIX D

**TABULATION OF RESULTS FOR MERCURY VAPOR
IN AMBIENT AIR (JULY 1986-DECEMBER 1990)**

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 2

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
18JUL86	22JUL86	5.71	0.330	0.058
22JUL86	25JUL86	3.70	0.110	0.030
25JUL86	29JUL86	5.14	0.150	0.029
29JUL86	01AUG86	3.64	0.066	0.018
01AUG86	05AUG86	4.68	0.079	0.017
05AUG86	08AUG86	3.44	0.065	0.019
08AUG86	12AUG86	5.07	0.078	0.015
12AUG86	15AUG86	3.91	0.049	0.013
15AUG86	19AUG86	4.82	0.050	0.010
19AUG86	22AUG86	3.71	0.033	0.009
22AUG86	26AUG86	4.79	0.070	0.015
26AUG86	29AUG86	3.86	0.030	0.008
29AUG86	02SEP86	4.52	0.013	0.003
02SEP86	05SEP86	3.54	0.017	0.005
05SEP86	09SEP86	4.83	0.018	0.004
09SEP86	12SEP86	3.53	0.032	0.009
12SEP86	16SEP86	4.75	0.019	0.004
16SEP86	19SEP86	3.57	0.023	0.006
19SEP86	23SEP86	4.76	0.035	0.007
23SEP86	30SEP86	8.43	0.093	0.011
30SEP86	07OCT86	8.32	0.098	0.012
07OCT86	14OCT86	8.22	0.037	0.005
14OCT86	21OCT86	8.43	0.027	0.003
21OCT86	28OCT86	8.56	0.046	0.005
28OCT86	04NOV86	7.99	0.028	0.004
04NOV86	11NOV86	8.08	0.039	0.005
11NOV86	18NOV86	8.37	0.032	0.004
18NOV86	25NOV86	8.36	0.082	0.010
25NOV86	02DEC86	8.27	0.037	0.004
02DEC86	09DEC86	8.34	0.117	0.014
09DEC86	16DEC86	8.47	0.035	0.004
16DEC86	23DEC86	8.21	0.040	0.005
23DEC86	30DEC86	8.33	0.036	0.004
30DEC86	06JAN87	8.62	0.030	0.003
06JAN87	13JAN87	8.69	0.056	0.006
13JAN87	20JAN87	8.62	0.040	0.005
20JAN87	27JAN87	8.63	0.026	0.003
27JAN87	03FEB87	8.69	0.053	0.006
03FEB87	10FEB87	8.49	0.047	0.006
10FEB87	17FEB87	8.47	0.068	0.008
17FEB87	24FEB87	8.63	0.035	0.004
24FEB87	03MAR87	8.45	0.030	0.004
03MAR87	10MAR87	8.28	0.025	0.003
10MAR87	17MAR87	8.21	0.025	0.003
17MAR87	24MAR87	8.04	0.028	0.003
24MAR87	31MAR87	7.97	0.046	0.006

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 2 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
31MAR87	07APR87	8.07	0.029	0.004
07APR87	14APR87	8.18	0.047	0.006
14APR87	21APR87	8.05	0.039	0.005
21APR87	28APR87	8.04	0.004	0.001
28APR87	05MAY87	8.14	0.150	0.018
05MAY87	12MAY87	8.25	0.110	0.013
12MAY87	19MAY87	8.11	0.110	0.014
19MAY87	26MAY87	8.05	0.110	0.014
26MAY87	02JUN87	8.16	0.120	0.015
02JUN87	09JUN87	8.29	0.080	0.010
09JUN87	16JUN87	8.44	0.210	0.025
16JUN87	23JUN87	8.23	0.093	0.011
23JUN87	30JUN87	8.31	0.096	0.012
30JUN87	07JUL87	8.27	0.120	0.015
07JUL87	14JUL87	8.51	0.280	0.033
14JUL87	21JUL87	8.13	0.121	0.015
21JUL87	28JUL87	8.29	0.064	0.008
28JUL87	04AUG87	8.27	0.060	0.007
04AUG87	11AUG87	8.34	0.132	0.016
11AUG87	18AUG87	8.46	0.063	0.007
18AUG87	25AUG87	8.37	0.095	0.011
25AUG87	01SEP87	8.35	0.098	0.012
01SEP87	08SEP87	8.46	0.031	0.004
08SEP87	15SEP87	8.46	0.081	0.010
15SEP87	22SEP87	8.56	0.090	0.011
22SEP87	29SEP87	8.57	0.036	0.004
29SEP87	06OCT87	8.57	0.091	0.011
06OCT87	13OCT87	8.68	0.054	0.006
13OCT87	20OCT87	8.69	0.064	0.007
20OCT87	27OCT87	8.52	0.111	0.013
27OCT87	03NOV87	8.74	0.083	0.009
03NOV87	10NOV87	8.77	0.144	0.016
10NOV87	17NOV87	8.62	0.059	0.007
17NOV87	24NOV87	8.15	0.086	0.011
24NOV87	01DEC87	8.04	0.070	0.009
01DEC87	08DEC87	8.03	0.040	0.005
08DEC87	15DEC87	8.34	0.067	0.008
15DEC87	22DEC87	8.58	0.038	0.004
22DEC87	29DEC87	8.74	0.046	0.005
29DEC87	05JAN88	8.86	0.069	0.008
05JAN88	12JAN88	8.81	0.044	0.005
12JAN88	19JAN88	8.59	0.044	0.005
19JAN88	27JAN88	10.00	0.083	0.008
27JAN88	02FEB88	7.48	0.115	0.015
02FEB88	09FEB88	8.72	0.046	0.005

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 2 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
09FEB88	16FEB88	8.52	0.035	0.004
16FEB88	23FEB88	8.56	0.050	0.006
23FEB88	01MAR88	8.37	0.066	0.008
01MAR88	08MAR88	8.28	0.071	0.009
08MAR88	15MAR88	8.29	0.052	0.006
15MAR88	22MAR88	8.40	0.046	0.005
22MAR88	29MAR88	8.46	0.120	0.014
29MAR88	05APR88	8.57	0.072	0.008
05APR88	12APR88	8.56	0.054	0.006
12APR88	19APR88	8.50	0.081	0.010
19APR88	26APR88	8.35	0.131	0.016
26APR88	03MAY88	8.43	0.093	0.011
03MAY88	10MAY88	8.35	0.097	0.012
10MAY88	17MAY88	8.32	0.102	0.012
17MAY88	24MAY88	8.56	0.200	0.023
24MAY88	31MAY88	8.68	0.053	0.006
31MAY88	07JUN88	8.63	0.054	0.006
07JUN88	14JUN88	8.58	0.190	0.022
14JUN88	21JUN88	5.67	0.124	0.022
21JUN88	28JUN88	8.31	0.295	0.035
28JUN88	05JUL88	8.31	0.093	0.011
05JUL88	12JUL88	8.64	0.153	0.018
12JUL88	19JUL88	8.45	0.143	0.017
19JUL88	26JUL88	7.93	0.117	0.015
26JUL88	02AUG88	7.42	0.121	0.016
02AUG88	10AUG88	8.33	0.073	0.009
10AUG88	16AUG88	6.42	0.065	0.010
16AUG88	23AUG88	7.47	0.101	0.014
23AUG88	30AUG88	7.21	0.061	0.009
30AUG88	06SEP88	7.25	0.040	0.005
06SEP88	13SEP88	6.92	0.025	0.004
13SEP88	20SEP88	6.66	0.043	0.006
20SEP88	27SEP88	7.48	0.047	0.006
27SEP88	04OCT88	7.45	0.025	0.003
04OCT88	11OCT88	7.33	0.046	0.006
11OCT88	18OCT88	7.43	0.050	0.007
18OCT88	25OCT88	7.35	0.049	0.007
25OCT88	01NOV88	7.48	0.026	0.004
01NOV88	08NOV88	7.45	0.069	0.009
08NOV88	15NOV88	7.29	0.056	0.008
15NOV88	22NOV88	7.43	0.029	0.004
22NOV88	29NOV88	7.17	0.048	0.007
29NOV88	06DEC88	7.45	0.037	0.005
06DEC88	13DEC88	7.74	0.048	0.006
13DEC88	20DEC88	7.65	0.055	0.007

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 2 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
20DEC88	27DEC88	7.53	0.043	0.006
27DEC88	03JAN89	7.61	0.045	0.006
03JAN89	10JAN89	7.57	0.035	0.005
10JAN89	17JAN89	7.39	0.028	0.004
17JAN89	24JAN89	7.21	0.051	0.007
24JAN89	31JAN89	7.02	0.051	0.007
31JAN89	09FEB89	11.15	0.065	0.006
09FEB89	14FEB89	6.15	0.041	0.007
14FEB89	21FEB89	8.67	0.035	0.004
21FEB89	28FEB89	8.46	0.035	0.004
28FEB89	07MAR89	8.34	0.033	0.004
07MAR89	14MAR89	8.39	0.051	0.006
14MAR89	21MAR89	8.51	0.046	0.005
21MAR89	28MAR89	8.62	0.060	0.007
28MAR89	04APR89	8.76	0.071	0.008
04APR89	11APR89	8.15	0.033	0.004
11APR89	18APR89	8.39	0.056	0.007
18APR89	25APR89	8.31	0.060	0.007
25APR89	02MAY89	8.12	0.091	0.011
02MAY89	09MAY89	8.37	0.044	0.005
09MAY89	16MAY89	8.43	0.042	0.005
16MAY89	23MAY89	8.52	0.056	0.007
23MAY89	30MAY89	7.28	0.079	0.011
30MAY89	06JUN89	8.39	0.104	0.012
06JUN89	14JUN89	9.80	0.057	0.006
14JUN89	20JUN89	6.69	0.036	0.005
20JUN89	27JUN89	8.45	0.059	0.007
27JUN89	05JUL89	9.74	0.043	0.004
05JUL89	11JUL89	7.42	0.079	0.011
11JUL89	18JUL89	8.46	0.048	0.006
18JUL89	25JUL89	8.69	0.079	0.009
25JUL89	01AUG89	8.54	0.057	0.007
01AUG89	08AUG89	8.58	0.104	0.012
08AUG89	15AUG89	8.51	0.035	0.004
15AUG89	22AUG89	8.46	0.058	0.007
22AUG89	29AUG89	8.53	0.060	0.007
29AUG89	05SEP89	8.56	0.057	0.007
05SEP89	12SEP89	8.32	0.054	0.006
12SEP89	19SEP89	8.33	0.041	0.005
19SEP89	26SEP89	8.41	0.034	0.004
26SEP89	03OCT89	8.22	0.028	0.003
03OCT89	10OCT89	8.42	0.079	0.009
10OCT89	17OCT89	8.40	0.077	0.009
17OCT89	24OCT89	8.32	0.051	0.006
24OCT89	31OCT89	8.48	0.045	0.005

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 2 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
31OCT89	07NOV89	7.98	0.049	0.006
07NOV89	14NOV89	8.29	0.090	0.011
14NOV89	21NOV89	8.39	0.041	0.005
21NOV89	28NOV89	8.29	0.079	0.010
28NOV89	05DEC89	8.27	0.041	0.005
05DEC89	12DEC89	8.26	0.040	0.005
12DEC89	19DEC89	8.46	0.032	0.004
19DEC89	27DEC89	9.40	0.028	0.003
27DEC89	02JAN90	7.16	0.046	0.006
02JAN90	09JAN90	8.13	0.070	0.009
09JAN90	16JAN90	7.95	0.084	0.011
16JAN90	23JAN90	8.25	0.064	0.008
23JAN90	30JAN90	8.12	0.051	0.006
30JAN90	06FEB90	8.05	0.047	0.006
06FEB90	13FEB90	8.08	0.045	0.006
13FEB90	20FEB90	7.87	0.039	0.005
20FEB90	27FEB90	7.49	0.023	0.003
27FEB90	06MAR90	7.92	0.026	0.003
06MAR90	13MAR90	8.18	0.059	0.007
13MAR90	20MAR90	9.01	0.041	0.005
20MAR90	27MAR90	8.06	0.033	0.004
27MAR90	03APR90	7.99	0.033	0.004
03APR90	10APR90	8.12	0.033	0.004
10APR90	19APR90	10.74	0.042	0.004
19APR90	24APR90	5.70	0.042	0.007
24APR90	01MAY90	8.16	0.118	0.014
01MAY90	08MAY90	8.27	0.039	0.005
08MAY90	15MAY90	8.38	0.003	0.000
15MAY90	22MAY90	7.89	0.105	0.013
22MAY90	29MAY90	7.89	0.079	0.010
29MAY90	05JUN90	8.06	0.058	0.007
05JUN90	13JUN90	9.56	0.094	0.010
13JUN90	19JUN90	7.29	0.060	0.008
19JUN90	27JUN90	9.66	0.093	0.010
27JUN90	03JUL90	6.99	0.059	0.008
03JUL90	10JUL90	8.27	0.086	0.010
10JUL90	17JUL90	8.25	0.033	0.004
17JUL90	24JUL90	8.16	0.056	0.007
24JUL90	31JUL90	8.20	0.029	0.004
31JUL90	07AUG90	8.30	0.043	0.005
07AUG90	14AUG90	8.23	0.073	0.009
14AUG90	21AUG90	8.25	0.130	0.016
21AUG90	28AUG90	8.21	0.031	0.004
28AUG90	04SEP90	8.46	0.041	0.005
04SEP90	11SEP90	8.07	0.143	0.018

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 2 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
11SEP90	18SEP90	8.41	0.039	0.005
18SEP90	25SEP90	8.36	0.042	0.005
25SEP90	02OCT90	8.22	0.045	0.005
02OCT90	09OCT90	8.46	0.035	0.004
09OCT90	17OCT90	9.31	0.047	0.005
17OCT90	24OCT90	8.25	0.028	0.003
24OCT90	31OCT90	8.28	0.032	0.004
31OCT90	06NOV90	7.18	0.031	0.004
06NOV90	13NOV90	8.25	0.030	0.004
13NOV90	20NOV90	8.27	0.021	0.002
20NOV90	27NOV90	8.24	0.066	0.008
27NOV90	04DEC90	8.26	0.025	0.003
04DEC90	11DEC90	8.13	0.034	0.004
11DEC90	18DEC90	8.25	0.046	0.006
18DEC90	26DEC90	9.42	0.036	0.004

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 8

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
12AUG86	15AUG86	4.18	0.097	0.023
15AUG86	19AUG86	5.29	0.107	0.020
19AUG86	22AUG86	3.87	0.108	0.028
22AUG86	26AUG86	5.01	0.171	0.034
26AUG86	29AUG86	4.09	0.032	0.008
29AUG86	02SEP86	4.80	0.039	0.008
02SEP86	05SEP86	3.74	0.021	0.006
05SEP86	09SEP86	5.04	0.105	0.021
09SEP86	12SEP86	3.66	0.052	0.014
12SEP86	16SEP86	4.94	0.091	0.018
16SEP86	19SEP86	3.75	0.032	0.009
19SEP86	23SEP86	4.94	0.089	0.018
23SEP86	30SEP86	8.79	0.291	0.033
30SEP86	07OCT86	8.75	0.153	0.017
07OCT86	14OCT86	8.54	0.109	0.013
14OCT86	21OCT86	8.70	0.178	0.020
21OCT86	28OCT86	8.98	0.193	0.021
28OCT86	04NOV86	8.65	0.170	0.020
04NOV86	11NOV86	8.74	0.180	0.021
11NOV86	18NOV86	8.81	0.077	0.009
18NOV86	25NOV86	8.74	0.168	0.019
25NOV86	02DEC86	8.70	0.170	0.020
02DEC86	09DEC86	8.67	0.002	0.000
09DEC86	16DEC86	8.73	0.100	0.011
16DEC86	23DEC86	8.61	0.178	0.021
23DEC86	30DEC86	8.67	0.133	0.015
30DEC86	06JAN87	8.49	0.160	0.019
06JAN87	13JAN87	8.65	0.237	0.027
13JAN87	20JAN87	8.66	0.147	0.017
20JAN87	27JAN87	8.60	0.104	0.012
27JAN87	03FEB87	8.61	0.105	0.012
03FEB87	10FEB87	8.59	0.330	0.038
10FEB87	17FEB87	8.57	0.500	0.058
17FEB87	24FEB87	8.55	0.180	0.021
24FEB87	03MAR87	8.53	0.210	0.025
03MAR87	10MAR87	8.58	0.280	0.033
10MAR87	17MAR87	8.40	0.210	0.025
17MAR87	24MAR87	8.45	0.250	0.030
24MAR87	31MAR87	8.65	0.290	0.034
31MAR87	07APR87	8.47	0.057	0.007
07APR87	14APR87	8.65	0.250	0.029
14APR87	21APR87	8.64	0.320	0.037
21APR87	28APR87	8.60	0.460	0.053
28APR87	05MAY87	8.56	0.570	0.067
05MAY87	12MAY87	8.63	0.550	0.064
12MAY87	19MAY87	8.70	0.520	0.060

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 8 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
19MAY87	26MAY87	8.76	0.290	0.033
26MAY87	02JUN87	8.68	0.350	0.040
02JUN87	09JUN87	8.65	0.550	0.064
09JUN87	16JUN87	8.79	0.420	0.048
16JUN87	23JUN87	8.58	0.082	0.010
23JUN87	30JUN87	8.61	0.230	0.027
30JUN87	07JUL87	8.64	0.170	0.020
07JUL87	14JUL87	8.99	0.160	0.018
14JUL87	21JUL87	8.57	0.421	0.049
21JUL87	28JUL87	8.66	0.482	0.056
28JUL87	04AUG87	8.63	0.368	0.043
04AUG87	11AUG87	8.57	0.198	0.023
11AUG87	18AUG87	8.70	0.234	0.027
18AUG87	25AUG87	8.65	0.406	0.047
25AUG87	01SEP87	8.66	0.368	0.042
01SEP87	08SEP87	8.70	0.295	0.034
08SEP87	15SEP87	8.67	0.230	0.027
15SEP87	22SEP87	8.62	0.260	0.030
22SEP87	29SEP87	8.88	0.450	0.051
29SEP87	06OCT87	8.82	0.170	0.019
06OCT87	13OCT87	8.74	0.215	0.025
13OCT87	20OCT87	8.70	0.434	0.050
20OCT87	27OCT87	8.68	0.184	0.021
27OCT87	03NOV87	8.63	0.298	0.035
03NOV87	10NOV87	8.49	0.275	0.032
10NOV87	17NOV87	8.55	0.206	0.024
17NOV87	24NOV87	8.62	0.143	0.017
24NOV87	01DEC87	8.71	0.135	0.015
01DEC87	08DEC87	4.31	0.062	0.014
08DEC87	15DEC87	8.38	0.205	0.024
15DEC87	22DEC87	8.64	0.105	0.012
22DEC87	29DEC87	8.54	0.122	0.014
29DEC87	05JAN88	8.45	0.093	0.011
05JAN88	12JAN88	8.49	0.088	0.010
12JAN88	19JAN88	8.58	0.080	0.009
19JAN88	27JAN88	9.15	0.116	0.013
27JAN88	02FEB88	6.29	0.152	0.024
02FEB88	09FEB88	7.01	0.060	0.009
09FEB88	16FEB88	6.46	0.059	0.009
16FEB88	23FEB88	6.57	0.080	0.012
23FEB88	01MAR88	6.73	0.106	0.016
01MAR88	08MAR88	6.74	0.123	0.018
08MAR88	15MAR88	6.74	0.074	0.011
15MAR88	22MAR88	6.63	0.098	0.015
22MAR88	29MAR88	6.34	0.216	0.034

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 8 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
29MAR88	05APR88	6.17	0.168	0.027
05APR88	12APR88	6.27	0.105	0.017
12APR88	19APR88	6.26	0.123	0.020
19APR88	26APR88	6.04	0.175	0.029
26APR88	03MAY88	5.83	0.250	0.043
03MAY88	10MAY88	5.47	0.160	0.029
10MAY88	17MAY88	5.10	0.315	0.062
17MAY88	24MAY88	6.86	0.470	0.069
24MAY88	31MAY88	8.62	0.390	0.045
31MAY88	07JUN88	7.47	0.500	0.067
07JUN88	14JUN88	7.42	0.370	0.050
14JUN88	21JUN88	8.57	0.471	0.055
21JUN88	28JUN88	7.15	0.341	0.048
28JUN88	05JUL88	7.81	0.322	0.041
05JUL88	12JUL88	8.60	0.380	0.044
12JUL88	19JUL88	8.57	0.198	0.023
19JUL88	26JUL88	8.58	0.228	0.027
26JUL88	02AUG88	8.70	3.540	0.407
02AUG88	10AUG88	9.96	1.410	0.141
10AUG88	16AUG88	7.29	0.849	0.116
16AUG88	23AUG88	8.63	0.330	0.038
23AUG88	30AUG88	8.57	0.288	0.034
30AUG88	06SEP88	8.40	0.155	0.018
06SEP88	13SEP88	6.90	0.133	0.019
13SEP88	20SEP88	8.09	0.171	0.021
20SEP88	27SEP88	8.27	0.276	0.033
27SEP88	04OCT88	7.88	0.219	0.028
04OCT88	11OCT88	8.32	0.138	0.017
11OCT88	18OCT88	8.32	0.157	0.019
18OCT88	25OCT88	8.22	0.056	0.007
25OCT88	01NOV88	8.21	0.107	0.013
01NOV88	08NOV88	8.39	0.210	0.025
08NOV88	15NOV88	8.04	0.106	0.013
15NOV88	22NOV88	8.32	0.090	0.011
22NOV88	29NOV88	8.22	0.146	0.018
29NOV88	06DEC88	8.06	0.224	0.028
06DEC88	13DEC88	8.23	0.187	0.023
13DEC88	20DEC88	8.32	0.565	0.068
20DEC88	27DEC88	8.27	0.544	0.066
27DEC88	03JAN89	8.39	0.964	0.115
03JAN89	10JAN89	8.06	0.130	0.016
10JAN89	17JAN89	7.28	0.405	0.056
17JAN89	24JAN89	6.76	0.700	0.104
24JAN89	31JAN89	6.56	1.160	0.177
31JAN89	09FEB89	10.84	0.540	0.050

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 8 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
09FEB89	14FEB89	6.16	0.980	0.159
14FEB89	21FEB89	8.57	0.200	0.023
21FEB89	28FEB89	8.51	0.529	0.062
28FEB89	07MAR89	8.46	0.435	0.051
07MAR89	14MAR89	8.46	2.282	0.270
14MAR89	21MAR89	8.56	0.672	0.079
21MAR89	28MAR89	8.45	1.547	0.183
28MAR89	04APR89	8.77	1.990	0.227
04APR89	11APR89	8.26	0.160	0.019
11APR89	18APR89	8.45	2.892	0.342
18APR89	25APR89	8.54	4.246	0.497
25APR89	02MAY89	8.46	3.865	0.457
02MAY89	09MAY89	8.64	0.597	0.069
09MAY89	16MAY89	8.56	0.729	0.085
16MAY89	23MAY89	8.51	1.380	0.162
23MAY89	30MAY89	8.58	1.691	0.197
30MAY89	06JUN89	8.39	1.860	0.222
06JUN89	14JUN89	9.93	0.651	0.066
14JUN89	20JUN89	6.96	0.286	0.041
20JUN89	27JUN89	8.45	0.969	0.115
27JUN89	05JUL89	9.76	0.375	0.038
05JUL89	11JUL89	7.37	0.450	0.061
11JUL89	18JUL89	8.50	0.331	0.039
18JUL89	25JUL89	8.52	0.667	0.078
25JUL89	01AUG89	8.55	0.737	0.086
01AUG89	08AUG89	7.89	0.629	0.080
08AUG89	15AUG89	7.53	0.663	0.088
15AUG89	22AUG89	8.35	1.006	0.121
22AUG89	29AUG89	8.39	0.851	0.101
29AUG89	05SEP89	8.28	0.990	0.120
05SEP89	12SEP89	8.19	1.547	0.189
12SEP89	19SEP89	8.50	0.236	0.028
19SEP89	26SEP89	8.34	0.705	0.085
26SEP89	03OCT89	8.14	0.337	0.041
03OCT89	10OCT89	8.19	5.290	0.646
10OCT89	17OCT89	8.16	9.680	1.187
17OCT89	24OCT89	8.28	1.080	0.130
24OCT89	31OCT89	8.46	2.490	0.294
31OCT89	07NOV89	7.91	1.006	0.127
07NOV89	14NOV89	8.22	0.465	0.057
14NOV89	21NOV89	8.21	0.300	0.037
21NOV89	28NOV89	8.10	0.089	0.011
28NOV89	05DEC89	8.08	0.131	0.016
07DEC89	12DEC89	5.78	0.058	0.010
12DEC89	19DEC89	8.25	0.057	0.007

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 8 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
19DEC89	27DEC89	9.10	0.058	0.006
27DEC89	02JAN90	7.06	0.075	0.011
02JAN90	09JAN90	8.25	0.077	0.009
09JAN90	16JAN90	8.39	0.111	0.013
16JAN90	23JAN90	8.35	0.123	0.015
23JAN90	30JAN90	8.11	0.087	0.011
30JAN90	06FEB90	7.52	0.105	0.014
06FEB90	13FEB90	7.32	0.096	0.013
13FEB90	20FEB90	7.52	0.067	0.009
20FEB90	27FEB90	7.43	0.049	0.007
27FEB90	06MAR90	7.56	0.093	0.012
06MAR90	13MAR90	6.25	0.013	0.002
13MAR90	20MAR90	.	0.081	.
20MAR90	27MAR90	10.17	0.093	0.009
27MAR90	03APR90	10.09	0.101	0.010
03APR90	10APR90	10.16	0.090	0.009
10APR90	19APR90	13.16	0.150	0.011
19APR90	24APR90	7.11	0.108	0.015
24APR90	01MAY90	9.74	0.181	0.019
01MAY90	08MAY90	10.23	0.100	0.010
08MAY90	15MAY90	10.13	0.081	0.008
15MAY90	22MAY90	9.87	0.073	0.007
22MAY90	29MAY90	10.15	0.070	0.007
29MAY90	05JUN90	10.13	0.089	0.009
05JUN90	13JUN90	11.64	0.121	0.010
13JUN90	19JUN90	8.71	0.085	0.010
19JUN90	27JUN90	11.77	0.155	0.013
27JUN90	03JUL90	8.97	0.132	0.015
03JUL90	10JUL90	10.20	0.133	0.013
10JUL90	17JUL90	9.91	0.074	0.007
17JUL90	24JUL90	10.22	0.074	0.007
24JUL90	31JUL90	10.21	0.159	0.016
31JUL90	07AUG90	10.23	0.128	0.013
07AUG90	14AUG90	10.17	0.207	0.020
14AUG90	21AUG90	10.16	0.166	0.016
21AUG90	28AUG90	10.19	0.223	0.022
28AUG90	04SEP90	10.42	0.193	0.019
04SEP90	11SEP90	9.74	0.244	0.025
11SEP90	18SEP90	10.06	0.072	0.007
18SEP90	25SEP90	10.13	0.085	0.008
25SEP90	02OCT90	9.95	0.143	0.014
02OCT90	09OCT90	10.40	0.119	0.011
09OCT90	17OCT90	11.42	0.095	0.008
17OCT90	24OCT90	10.07	0.062	0.006
24OCT90	31OCT90	10.03	0.082	0.008

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Ambient No. 8 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
31OCT90	06NOV90	8.74	0.170	0.020
06NOV90	13NOV90	9.98	0.067	0.007
13NOV90	20NOV90	10.06	0.104	0.010
20NOV90	27NOV90	9.96	0.086	0.009
27NOV90	04DEC90	10.10	0.043	0.004
04DEC90	11DEC90	10.14	0.078	0.008
11DEC90	18DEC90	10.04	0.057	0.006
18DEC90	26DEC90	11.43	0.042	0.004

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9404-13

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
15JUL86	18JUL86	4.09	0.700	0.171
18JUL86	22JUL86	5.89	1.030	0.175
01AUG86	05AUG86	5.14	0.845	0.164
05AUG86	08AUG86	3.80	0.466	0.123
12AUG86	15AUG86	4.01	0.542	0.135
15AUG86	19AUG86	5.10	0.935	0.183
19AUG86	22AUG86	3.77	0.712	0.189
22AUG86	26AUG86	4.76	0.862	0.181
26AUG86	29AUG86	4.57	0.510	0.112
29AUG86	02SEP86	5.34	0.708	0.133
02SEP86	05SEP86	4.22	0.187	0.044
05SEP86	09SEP86	5.70	0.837	0.147
09SEP86	12SEP86	4.13	0.221	0.054
12SEP86	16SEP86	5.60	0.636	0.114
16SEP86	19SEP86	4.26	0.298	0.070
19SEP86	23SEP86	5.60	0.427	0.076
23SEP86	30SEP86	9.97	0.801	0.080
30SEP86	07OCT86	9.86	0.729	0.074
07OCT86	14OCT86	9.69	0.658	0.068
14OCT86	21OCT86	9.86	0.735	0.075
21OCT86	28OCT86	10.14	0.633	0.062
28OCT86	04NOV86	9.67	1.000	0.103
04NOV86	11NOV86	9.77	0.740	0.076
11NOV86	18NOV86	9.82	0.810	0.082
18NOV86	25NOV86	9.83	0.785	0.080
25NOV86	02DEC86	9.87	1.942	0.197
02DEC86	09DEC86	9.83	0.324	0.033
09DEC86	16DEC86	9.90	0.734	0.074
16DEC86	23DEC86	9.80	1.030	0.105
23DEC86	30DEC86	9.89	0.690	0.070
30DEC86	06JAN87	9.88	0.930	0.094
06JAN87	13JAN87	9.91	0.431	0.044
13JAN87	20JAN87	9.77	1.156	0.118
20JAN87	27JAN87	9.77	0.605	0.062
27JAN87	03FEB87	9.72	0.440	0.045
03FEB87	10FEB87	9.79	1.490	0.152
10FEB87	17FEB87	9.68	1.560	0.161
17FEB87	24FEB87	9.68	0.980	0.101
24FEB87	03MAR87	9.71	1.350	0.139
03MAR87	10MAR87	9.78	1.830	0.187
10MAR87	17MAR87	9.57	1.210	0.126
17MAR87	24MAR87	9.71	2.400	0.247
24MAR87	31MAR87	9.82	1.950	0.199
31MAR87	07APR87	9.57	0.720	0.075
07APR87	14APR87	9.74	1.550	0.159
14APR87	21APR87	9.67	1.530	0.158

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9404-13 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
21APR87	28APR87	9.73	3.970	0.408
28APR87	05MAY87	9.70	2.940	0.303
05MAY87	12MAY87	9.79	2.890	0.295
12MAY87	19MAY87	9.88	2.400	0.243
19MAY87	26MAY87	9.83	1.480	0.151
26MAY87	02JUN87	9.80	0.840	0.086
02JUN87	09JUN87	9.73	2.170	0.223
09JUN87	16JUN87	9.90	1.480	0.150
16JUN87	23JUN87	9.75	1.240	0.127
23JUN87	30JUN87	9.71	1.180	0.121
30JUN87	07JUL87	9.75	0.710	0.073
07JUL87	14JUL87	10.08	1.430	0.142
14JUL87	21JUL87	8.24	3.290	0.399
21JUL87	28JUL87	9.70	3.650	0.376
28JUL87	04AUG87	9.77	3.220	0.329
04AUG87	11AUG87	9.68	1.530	0.158
11AUG87	18AUG87	9.76	1.970	0.202
18AUG87	25AUG87	9.66	3.100	0.321
25AUG87	01SEP87	9.72	2.245	0.231
01SEP87	08SEP87	9.72	4.520	0.465
08SEP87	15SEP87	9.66	1.580	0.164
15SEP87	22SEP87	9.69	1.390	0.143
22SEP87	29SEP87	9.69	2.220	0.229
29SEP87	06OCT87	9.57	1.720	0.180
06OCT87	13OCT87	9.57	1.752	0.183
13OCT87	20OCT87	9.69	1.486	0.153
20OCT87	27OCT87	9.69	1.035	0.107
27OCT87	03NOV87	9.63	1.996	0.207
03NOV87	10NOV87	9.61	1.739	0.181
10NOV87	17NOV87	9.42	1.350	0.143
17NOV87	24NOV87	9.44	0.701	0.074
24NOV87	01DEC87	9.37	1.286	0.137
01DEC87	08DEC87	9.53	0.490	0.051
08DEC87	15DEC87	9.46	0.744	0.079
15DEC87	22DEC87	9.49	0.568	0.060
22DEC87	29DEC87	9.37	0.748	0.080
29DEC87	05JAN88	9.45	1.150	0.122
05JAN88	12JAN88	9.67	0.896	0.093
12JAN88	19JAN88	9.59	0.606	0.063
19JAN88	27JAN88	11.05	0.313	0.028
02FEB88	09FEB88	9.72	0.604	0.062
09FEB88	16FEB88	9.46	0.563	0.060
16FEB88	23FEB88	9.17	0.387	0.042
23FEB88	01MAR88	8.80	0.489	0.056
01MAR88	08MAR88	8.39	0.728	0.087

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9404-13 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
08MAR88	15MAR88	8.05	0.432	0.054
15MAR88	22MAR88	8.03	0.484	0.060
22MAR88	29MAR88	8.88	0.571	0.064
29MAR88	05APR88	9.47	3.040	0.321
05APR88	12APR88	9.57	1.370	0.143
12APR88	19APR88	9.49	0.779	0.082
19APR88	26APR88	9.59	1.070	0.112
26APR88	03MAY88	9.68	1.210	0.125
03MAY88	10MAY88	9.75	0.733	0.075
10MAY88	17MAY88	9.70	1.170	0.121
17MAY88	24MAY88	9.56	1.720	0.180
24MAY88	31MAY88	9.46	2.170	0.229
31MAY88	07JUN88	9.11	2.780	0.305
07JUN88	14JUN88	9.79	3.330	0.340
14JUN88	21JUN88	7.68	1.538	0.200
21JUN88	28JUN88	8.36	2.344	0.280
28JUN88	05JUL88	8.82	1.947	0.221
05JUL88	12JUL88	9.72	1.613	0.166
12JUL88	19JUL88	9.73	2.570	0.264
19JUL88	26JUL88	9.81	1.650	0.168
26JUL88	02AUG88	9.78	2.520	0.258
02AUG88	10AUG88	11.33	2.080	0.184
10AUG88	16AUG88	8.32	2.466	0.296
16AUG88	23AUG88	9.84	2.152	0.219
23AUG88	30AUG88	9.75	1.700	0.174
30AUG88	06SEP88	9.81	2.025	0.206
06SEP88	13SEP88	10.28	2.936	0.286
13SEP88	20SEP88	9.46	1.838	0.194
20SEP88	27SEP88	9.66	1.397	0.145
27SEP88	04OCT88	9.72	1.905	0.196
04OCT88	11OCT88	9.75	1.140	0.117
11OCT88	18OCT88	9.93	0.573	0.058
18OCT88	25OCT88	9.87	0.520	0.053
25OCT88	01NOV88	10.04	1.047	0.104
01NOV88	08NOV88	9.87	0.371	0.038
08NOV88	15NOV88	9.87	0.622	0.063
15NOV88	22NOV88	10.04	0.768	0.076
22NOV88	29NOV88	9.87	0.427	0.043
29NOV88	06DEC88	9.81	0.446	0.045
06DEC88	13DEC88	9.87	0.658	0.067
13DEC88	20DEC88	10.10	0.392	0.039
20DEC88	27DEC88	9.87	0.687	0.070
27DEC88	03JAN89	9.87	0.529	0.054
03JAN89	10JAN89	9.87	0.557	0.057
10JAN89	17JAN89	9.81	0.509	0.052

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9404-13 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
17JAN89	24JAN89	9.69	0.820	0.085
24JAN89	31JAN89	9.81	0.890	0.091
31JAN89	09FEB89	12.61	0.570	0.045
09FEB89	14FEB89	7.01	0.440	0.063
14FEB89	21FEB89	9.75	0.730	0.075
21FEB89	28FEB89	9.63	0.468	0.049
28FEB89	07MAR89	9.57	0.524	0.055
07MAR89	14MAR89	9.57	1.304	0.136
14MAR89	21MAR89	9.57	0.604	0.063
21MAR89	28MAR89	9.64	0.910	0.094
28MAR89	04APR89	9.86	0.515	0.052
04APR89	11APR89	9.29	0.362	0.039
11APR89	18APR89	9.57	1.140	0.119
18APR89	25APR89	9.60	1.620	0.169
25APR89	02MAY89	9.39	1.280	0.136
02MAY89	09MAY89	9.59	0.468	0.049
09MAY89	16MAY89	9.55	0.457	0.048
16MAY89	23MAY89	9.51	1.022	0.107
23MAY89	30MAY89	9.48	0.893	0.094
30MAY89	06JUN89	9.44	0.766	0.081
06JUN89	14JUN89	11.17	1.030	0.092
14JUN89	20JUN89	7.93	0.443	0.056
20JUN89	27JUN89	9.39	1.188	0.127
27JUN89	05JUL89	10.88	1.952	0.179
05JUL89	11JUL89	8.23	1.126	0.137
11JUL89	18JUL89	9.48	1.740	0.184
18JUL89	25JUL89	9.57	0.780	0.082
25JUL89	01AUG89	9.62	1.320	0.137
01AUG89	08AUG89	9.54	1.020	0.107
08AUG89	15AUG89	9.39	1.906	0.203
15AUG89	22AUG89	9.40	0.842	0.090
24AUG89	29AUG89	6.28	0.983	0.157
29AUG89	05SEP89	9.68	1.998	0.206
05SEP89	12SEP89	9.56	1.462	0.153
12SEP89	19SEP89	9.65	1.616	0.167
19SEP89	26SEP89	9.66	2.076	0.215
26SEP89	03OCT89	9.67	1.577	0.163
03OCT89	10OCT89	9.78	1.610	0.165
10OCT89	17OCT89	9.58	2.400	0.250
17OCT89	24OCT89	9.69	0.699	0.072
24OCT89	31OCT89	9.98	1.890	0.189
31OCT89	07NOV89	9.34	0.660	0.071
07NOV89	14NOV89	9.74	0.366	0.038
14NOV89	21NOV89	9.79	0.281	0.029
21NOV89	28NOV89	9.70	0.355	0.037

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9404-13 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
28NOV89	05DEC89	9.68	0.296	0.031
05DEC89	12DEC89	9.65	0.701	0.073
12DEC89	19DEC89	9.80	0.358	0.037
19DEC89	27DEC89	11.01	0.390	0.035
27DEC89	02JAN90	8.41	0.200	0.024
02JAN90	09JAN90	9.58	0.391	0.041
09JAN90	16JAN90	9.73	0.187	0.019
16JAN90	23JAN90	9.67	0.480	0.050
23JAN90	30JAN90	9.61	0.341	0.035
30JAN90	06FEB90	9.73	0.467	0.048
06FEB90	13FEB90	9.61	0.485	0.050
13FEB90	20FEB90	9.71	0.461	0.047
20FEB90	27FEB90	9.68	0.346	0.036
27FEB90	06MAR90	9.68	0.476	0.049
06MAR90	13MAR90	9.60	0.338	0.035
13MAR90	20MAR90	9.79	0.320	0.033
20MAR90	27MAR90	9.76	0.477	0.049
27MAR90	03APR90	9.63	0.345	0.036
03APR90	10APR90	9.72	0.373	0.038
10APR90	19APR90	12.55	0.507	0.040
19APR90	24APR90	6.90	0.323	0.047
24APR90	01MAY90	9.63	0.453	0.047
01MAY90	08MAY90	9.83	0.550	0.056
08MAY90	15MAY90	9.95	0.277	0.028
15MAY90	22MAY90	9.47	0.262	0.028
22MAY90	29MAY90	9.65	0.479	0.050
29MAY90	05JUN90	9.65	0.706	0.073
05JUN90	13JUN90	11.16	0.804	0.072
13JUN90	19JUN90	8.31	0.620	0.075
19JUN90	27JUN90	11.11	0.973	0.088
27JUN90	03JUL90	8.46	0.846	0.100
03JUL90	10JUL90	9.80	0.977	0.100
10JUL90	17JUL90	9.53	0.742	0.078
17JUL90	24JUL90	9.63	0.825	0.086
24JUL90	31JUL90	9.64	0.298	0.031
31JUL90	07AUG90	9.61	1.672	0.174
07AUG90	14AUG90	9.54	2.170	0.227
14AUG90	21AUG90	9.40	1.360	0.145
21AUG90	28AUG90	9.73	2.690	0.277
28AUG90	04SEP90	9.99	2.010	0.201
04SEP90	11SEP90	9.41	1.410	0.150
11SEP90	18SEP90	9.80	0.012	0.001
18SEP90	25SEP90	9.59	0.637	0.066
25SEP90	02OCT90	9.49	0.809	0.085
02OCT90	09OCT90	9.79	0.677	0.069

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9404-13 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
09OCT90	17OCT90	10.66	0.914	0.086
17OCT90	24OCT90	9.36	0.505	0.054
24OCT90	31OCT90	9.55	0.525	0.055
31OCT90	06NOV90	8.23	0.424	0.051
06NOV90	13NOV90	9.61	0.744	0.078
13NOV90	20NOV90	9.77	0.318	0.032
20NOV90	27NOV90	9.64	0.247	0.026
27NOV90	04DEC90	9.90	0.454	0.046
04DEC90	11DEC90	9.61	0.100	0.010
11DEC90	18DEC90	9.35	0.121	0.013
18DEC90	26DEC90	10.86	0.398	0.037

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9805-1

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
23SEP86	30SEP86	9.74	1.330	0.137
30SEP86	07OCT86	9.86	1.100	0.112
07OCT86	14OCT86	9.72	0.456	0.047
14OCT86	21OCT86	9.89	0.371	0.038
21OCT86	28OCT86	10.13	0.521	0.051
28OCT86	04NOV86	9.64	0.320	0.033
04NOV86	11NOV86	9.76	0.620	0.064
11NOV86	18NOV86	9.85	0.260	0.026
18NOV86	25NOV86	9.83	0.862	0.088
25NOV86	02DEC86	9.87	0.917	0.093
02DEC86	09DEC86	9.83	1.121	0.114
09DEC86	16DEC86	9.92	0.758	0.076
16DEC86	23DEC86	9.88	0.641	0.065
23DEC86	30DEC86	9.98	0.519	0.052
30DEC86	06JAN87	9.81	0.539	0.055
06JAN87	13JAN87	9.84	0.760	0.077
13JAN87	20JAN87	9.84	0.774	0.079
20JAN87	27JAN87	9.83	0.352	0.036
27JAN87	03FEB87	9.84	0.530	0.054
03FEB87	10FEB87	9.84	0.500	0.051
10FEB87	17FEB87	9.86	0.510	0.052
17FEB87	24FEB87	9.80	0.480	0.049
24FEB87	03MAR87	9.75	0.630	0.065
03MAR87	10MAR87	9.90	0.550	0.056
10MAR87	17MAR87	9.68	0.500	0.052
17MAR87	24MAR87	9.73	0.500	0.051
24MAR87	31MAR87	9.80	0.840	0.086
31MAR87	07APR87	9.70	0.400	0.041
07APR87	14APR87	9.81	1.070	0.109
14APR87	21APR87	9.72	0.540	0.056
21APR87	28APR87	9.72	1.520	0.156
28APR87	05MAY87	9.78	1.620	0.166
05MAY87	12MAY87	9.78	1.490	0.152
12MAY87	19MAY87	9.88	1.360	0.138
19MAY87	26MAY87	9.83	1.270	0.129
26MAY87	02JUN87	9.86	1.330	0.135
02JUN87	09JUN87	9.80	1.330	0.136
09JUN87	16JUN87	9.88	1.300	0.132
16JUN87	23JUN87	9.69	1.220	0.126
23JUN87	30JUN87	9.77	1.410	0.144
30JUN87	07JUL87	9.76	1.420	0.146
07JUL87	14JUL87	10.02	2.000	0.200
14JUL87	21JUL87	9.61	1.190	0.124
21JUL87	28JUL87	9.71	1.540	0.159
28JUL87	04AUG87	9.84	1.220	0.124
04AUG87	11AUG87	9.80	1.450	0.148

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9805-1 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
11AUG87	18AUG87	9.76	1.510	0.155
18AUG87	25AUG87	9.65	1.550	0.161
25AUG87	01SEP87	9.79	1.109	0.113
01SEP87	08SEP87	9.79	0.766	0.078
08SEP87	15SEP87	9.64	1.060	0.110
15SEP87	22SEP87	9.65	1.710	0.177
22SEP87	29SEP87	9.62	2.170	0.226
29SEP87	06OCT87	9.63	1.200	0.125
06OCT87	13OCT87	9.68	1.129	0.117
13OCT87	20OCT87	9.77	1.430	0.146
20OCT87	27OCT87	9.68	1.329	0.137
27OCT87	03NOV87	9.75	1.764	0.181
03NOV87	10NOV87	9.61	1.275	0.133
10NOV87	17NOV87	9.31	0.660	0.071
17NOV87	24NOV87	9.57	0.739	0.077
24NOV87	01DEC87	9.59	0.835	0.087
01DEC87	08DEC87	9.42	0.469	0.050
08DEC87	15DEC87	9.35	0.714	0.076
15DEC87	22DEC87	9.31	0.569	0.061
22DEC87	29DEC87	9.30	0.763	0.082
29DEC87	05JAN88	9.52	0.623	0.065
05JAN88	12JAN88	9.66	0.201	0.021
12JAN88	19JAN88	9.77	0.451	0.046
19JAN88	27JAN88	10.43	0.772	0.074
27JAN88	02FEB88	7.90	0.570	0.072
02FEB88	09FEB88	9.56	0.501	0.052
09FEB88	16FEB88	9.65	0.485	0.050
16FEB88	23FEB88	9.56	0.591	0.062
23FEB88	01MAR88	9.74	0.633	0.065
01MAR88	08MAR88	9.75	1.006	0.103
08MAR88	15MAR88	9.70	0.674	0.070
15MAR88	22MAR88	9.51	0.452	0.048
22MAR88	29MAR88	9.67	0.993	0.103
29MAR88	05APR88	9.34	0.772	0.083
05APR88	12APR88	9.51	0.737	0.077
12APR88	19APR88	9.43	1.680	0.178
19APR88	26APR88	9.64	1.020	0.106
26APR88	03MAY88	9.69	1.390	0.144
03MAY88	10MAY88	9.69	1.150	0.119
10MAY88	17MAY88	9.65	1.320	0.137
17MAY88	24MAY88	9.61	1.330	0.138
24MAY88	31MAY88	9.75	1.370	0.140
31MAY88	07JUN88	9.82	1.230	0.125
07JUN88	14JUN88	9.70	1.150	0.119
14JUN88	21JUN88	9.33	3.116	0.334

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9805-1 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
21JUN88	28JUN88	9.13	3.505	0.384
28JUN88	05JUL88	9.77	2.016	0.206
05JUL88	12JUL88	9.67	2.466	0.255
12JUL88	19JUL88	9.69	0.643	0.066
19JUL88	26JUL88	9.66	0.451	0.047
26JUL88	02AUG88	9.69	0.377	0.039
02AUG88	10AUG88	11.26	0.189	0.017
10AUG88	16AUG88	8.25	2.069	0.251
16AUG88	23AUG88	9.80	1.536	0.157
23AUG88	30AUG88	9.75	1.796	0.184
30AUG88	06SEP88	9.77	0.787	0.081
06SEP88	13SEP88	10.32	0.856	0.083
13SEP88	20SEP88	9.40	1.124	0.120
20SEP88	27SEP88	9.63	0.966	0.100
27SEP88	04OCT88	9.69	0.419	0.043
04OCT88	11OCT88	9.28	0.282	0.030
11OCT88	18OCT88	9.81	0.568	0.058
18OCT88	25OCT88	9.81	0.544	0.056
25OCT88	01NOV88	9.98	0.292	0.029
01NOV88	08NOV88	9.81	0.578	0.059
08NOV88	15NOV88	9.81	0.445	0.045
15NOV88	22NOV88	9.93	0.378	0.038
22NOV88	29NOV88	9.87	0.451	0.046
29NOV88	06DEC88	9.81	0.424	0.043
06DEC88	13DEC88	9.87	0.285	0.029
13DEC88	20DEC88	9.83	0.534	0.054
20DEC88	27DEC88	9.87	0.483	0.049
27DEC88	03JAN89	9.81	0.322	0.033
03JAN89	10JAN89	9.75	0.365	0.037
10JAN89	17JAN89	9.75	0.292	0.030
17JAN89	24JAN89	9.63	0.494	0.051
24JAN89	31JAN89	9.69	0.750	0.077
31JAN89	09FEB89	12.31	0.540	0.044
09FEB89	14FEB89	6.79	0.510	0.075
14FEB89	21FEB89	9.45	0.270	0.029
21FEB89	28FEB89	9.40	0.305	0.033
28FEB89	07MAR89	9.44	0.510	0.054
07MAR89	14MAR89	9.40	0.788	0.084
14MAR89	21MAR89	9.40	0.501	0.053
21MAR89	28MAR89	9.40	0.666	0.071
28MAR89	04APR89	9.58	0.701	0.073
04APR89	11APR89	9.06	0.376	0.042
11APR89	18APR89	9.16	0.733	0.080
18APR89	25APR89	9.30	1.016	0.109
25APR89	02MAY89	9.22	1.087	0.118

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9805-1 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
02MAY89	09MAY89	9.44	0.567	0.060
09MAY89	16MAY89	9.34	0.513	0.055
16MAY89	23MAY89	9.34	0.702	0.075
23MAY89	30MAY89	9.23	0.862	0.093
30MAY89	06JUN89	8.85	1.033	0.117
06JUN89	14JUN89	10.69	0.744	0.070
14JUN89	20JUN89	7.62	0.422	0.055
20JUN89	27JUN89	8.98	0.812	0.090
27JUN89	05JUL89	10.54	0.697	0.066
05JUL89	11JUL89	7.93	1.130	0.143
11JUL89	18JUL89	8.86	0.837	0.095
18JUL89	25JUL89	8.81	0.908	0.103
25JUL89	01AUG89	8.96	.	.
01AUG89	08AUG89	9.25	1.130	0.122
08AUG89	15AUG89	9.15	0.476	0.052
15AUG89	22AUG89	8.93	0.771	0.086
22AUG89	29AUG89	9.26	1.020	0.110
29AUG89	05SEP89	9.28	0.698	0.075
05SEP89	12SEP89	9.15	0.889	0.097
12SEP89	19SEP89	9.27	0.451	0.049
19SEP89	26SEP89	9.19	0.275	0.030
26SEP89	03OCT89	9.17	0.352	0.038
03OCT89	10OCT89	9.17	0.798	0.087
10OCT89	17OCT89	9.13	1.880	0.206
17OCT89	24OCT89	9.19	0.635	0.069
24OCT89	31OCT89	9.51	1.180	0.124
31OCT89	07NOV89	8.90	0.468	0.053
07NOV89	14NOV89	9.28	0.836	0.090
14NOV89	21NOV89	9.34	0.632	0.068
21NOV89	28NOV89	9.30	0.359	0.039
28NOV89	05DEC89	9.35	0.562	0.060
05DEC89	12DEC89	9.26	0.295	0.032
12DEC89	19DEC89	9.39	0.201	0.021
19DEC89	27DEC89	10.37	0.179	0.017
27DEC89	02JAN90	7.98	0.430	0.054
02JAN90	09JAN90	9.13	0.346	0.038
09JAN90	16JAN90	9.21	0.548	0.059
16JAN90	23JAN90	8.60	0.616	0.072
23JAN90	30JAN90	8.04	0.577	0.072
30JAN90	06FEB90	8.73	0.531	0.061
06FEB90	13FEB90	9.26	0.497	0.054
13FEB90	20FEB90	9.29	0.350	0.038
20FEB90	27FEB90	8.79	0.366	0.042
27FEB90	06MAR90	8.33	0.273	0.033
06MAR90	13MAR90	8.09	0.639	0.079

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Building 9805-1 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
13MAR90	20MAR90	8.66	0.620	0.072
20MAR90	27MAR90	9.28	0.227	0.024
27MAR90	03APR90	9.16	0.542	0.059
03APR90	10APR90	9.22	0.370	0.040
10APR90	19APR90	11.99	0.484	0.040
19APR90	24APR90	6.56	0.683	0.104
24APR90	01MAY90	9.13	1.299	0.142
01MAY90	08MAY90	9.36	0.489	0.052
08MAY90	15MAY90	9.45	0.585	0.062
15MAY90	22MAY90	8.94	0.749	0.084
22MAY90	29MAY90	9.07	0.465	0.051
29MAY90	05JUN90	9.12	0.477	0.052
05JUN90	13JUN90	10.55	0.973	0.092
13JUN90	19JUN90	7.95	0.906	0.114
19JUN90	27JUN90	10.58	1.069	0.101
27JUN90	03JUL90	8.07	0.762	0.094
03JUL90	10JUL90	9.35	1.120	0.120
10JUL90	17JUL90	9.09	0.856	0.094
17JUL90	24JUL90	9.23	1.213	0.131
24JUL90	31JUL90	9.18	0.872	0.095
31JUL90	07AUG90	9.22	1.332	0.144
07AUG90	14AUG90	9.30	0.691	0.074
14AUG90	21AUG90	9.25	1.440	0.156
21AUG90	28AUG90	9.25	0.790	0.085
28AUG90	04SEP90	9.51	1.160	0.122
04SEP90	11SEP90	8.91	1.440	0.162
11SEP90	18SEP90	9.44	0.630	0.067
18SEP90	25SEP90	9.31	0.617	0.066
25SEP90	02OCT90	9.20	0.617	0.067
02OCT90	09OCT90	9.49	0.686	0.072
09OCT90	17OCT90	10.38	0.584	0.056
17OCT90	24OCT90	9.25	0.320	0.035
24OCT90	31OCT90	9.33	0.258	0.028
31OCT90	06NOV90	8.13	0.489	0.060
06NOV90	13NOV90	9.43	0.170	0.018
13NOV90	20NOV90	9.46	0.443	0.047
20NOV90	27NOV90	9.32	0.497	0.054
27NOV90	04DEC90	9.33	0.480	0.051
04DEC90	11DEC90	9.38	0.262	0.028
11DEC90	18DEC90	9.30	0.370	0.040
18DEC90	26DEC90	10.55	0.408	0.039

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=New Hope Pond

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
19AUG87	25AUG87	7.59	0.259	0.034
25AUG87	01SEP87	8.73	0.254	0.029
01SEP87	08SEP87	8.81	0.113	0.013
08SEP87	15SEP87	8.80	0.340	0.039
15SEP87	22SEP87	8.79	0.270	0.031
22SEP87	29SEP87	8.88	0.120	0.014
29SEP87	06OCT87	8.81	0.200	0.023
06OCT87	13OCT87	8.85	0.115	0.013
13OCT87	20OCT87	8.86	0.113	0.013
20OCT87	27OCT87	8.87	0.118	0.013
27OCT87	03NOV87	8.92	0.106	0.012
03NOV87	10NOV87	8.73	0.146	0.017
10NOV87	17NOV87	8.78	0.136	0.015
17NOV87	24NOV87	8.88	0.095	0.011
24NOV87	01DEC87	8.80	0.059	0.007
01DEC87	08DEC87	8.72	0.055	0.006
08DEC87	15DEC87	8.69	0.080	0.009
15DEC87	22DEC87	8.84	0.064	0.007
22DEC87	29DEC87	8.77	0.068	0.008
29DEC87	05JAN88	8.34	0.055	0.007
05JAN88	12JAN88	8.74	0.038	0.004
12JAN88	19JAN88	8.51	0.053	0.006
19JAN88	27JAN88	9.85	0.091	0.009
27JAN88	02FEB88	7.46	0.092	0.012
02FEB88	09FEB88	8.68	0.061	0.007
09FEB88	16FEB88	8.39	0.047	0.006
16FEB88	23FEB88	8.43	0.069	0.008
23FEB88	01MAR88	8.22	0.087	0.011
01MAR88	08MAR88	8.02	0.083	0.010
08MAR88	15MAR88	8.07	0.073	0.009
15MAR88	22MAR88	8.15	0.038	0.005
22MAR88	29MAR88	8.28	0.122	0.015
29MAR88	05APR88	8.43	0.112	0.013
05APR88	12APR88	8.57	0.056	0.007
12APR88	19APR88	8.37	0.185	0.022
19APR88	26APR88	8.17	0.169	0.021
26APR88	03MAY88	8.43	0.102	0.012
03MAY88	10MAY88	8.57	0.145	0.017
10MAY88	17MAY88	8.18	0.203	0.025
17MAY88	24MAY88	8.57	0.150	0.018
24MAY88	31MAY88	8.49	0.180	0.021
31MAY88	07JUN88	8.62	0.430	0.050
07JUN88	14JUN88	8.58	0.780	0.091
14JUN88	21JUN88	2.25	0.697	0.309
21JUN88	28JUN88	5.35	0.905	0.169
28JUN88	05JUL88	8.39	0.549	0.065

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=New Hope Pond (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
05JUL88	12JUL88	8.28	0.836	0.101
12JUL88	19JUL88	8.37	1.760	0.210
19JUL88	26JUL88	8.40	1.220	0.145
26JUL88	02AUG88	8.41	3.470	0.412
02AUG88	10AUG88	9.62	3.100	0.322
10AUG88	16AUG88	7.06	0.160	0.023
16AUG88	23AUG88	8.43	0.218	0.026
23AUG88	30AUG88	8.33	0.190	0.023
30AUG88	06SEP88	8.29	0.130	0.016
06SEP88	13SEP88	8.58	0.164	0.019
13SEP88	20SEP88	8.14	0.192	0.024
20SEP88	27SEP88	8.33	0.121	0.015
27SEP88	04OCT88	8.27	0.095	0.012
04OCT88	11OCT88	8.27	0.103	0.012
11OCT88	18OCT88	8.26	0.096	0.012
18OCT88	25OCT88	8.02	0.076	0.010
25OCT88	01NOV88	8.47	0.058	0.007
01NOV88	08NOV88	8.19	0.101	0.012
08NOV88	15NOV88	8.33	0.074	0.009
15NOV88	22NOV88	8.27	0.060	0.007
22NOV88	29NOV88	8.22	0.065	0.008
29NOV88	06DEC88	7.51	0.076	0.010
06DEC88	13DEC88	7.58	0.057	0.008
13DEC88	20DEC88	8.38	0.074	0.009
20DEC88	27DEC88	8.40	0.056	0.007
27DEC88	03JAN89	8.53	0.032	0.004
03JAN89	10JAN89	8.14	0.026	0.003
10JAN89	17JAN89	8.26	0.022	0.003
17JAN89	24JAN89	8.16	0.032	0.004
24JAN89	31JAN89	8.11	0.041	0.005
31JAN89	09FEB89	10.69	0.051	0.005
09FEB89	14FEB89	5.86	0.033	0.006
14FEB89	21FEB89	8.49	0.026	0.003
21FEB89	28FEB89	8.23	0.020	0.002
28FEB89	07MAR89	8.22	0.023	0.003
07MAR89	14MAR89	8.18	0.036	0.004
14MAR89	21MAR89	8.39	0.025	0.003
21MAR89	28MAR89	8.44	0.036	0.004
28MAR89	05APR89	9.21	0.044	0.005
05APR89	11APR89	6.66	0.019	0.003
11APR89	18APR89	7.77	0.035	0.004
18APR89	25APR89	7.83	0.044	0.006
25APR89	02MAY89	7.82	0.068	0.009
02MAY89	09MAY89	8.12	0.023	0.003
09MAY89	16MAY89	8.03	0.030	0.004

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=New Hope Pond (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
16MAY89	23MAY89	8.03	0.030	0.004
23MAY89	30MAY89	8.11	0.047	0.006
30MAY89	06JUN89	8.10	0.058	0.007
06JUN89	14JUN89	9.87	0.041	0.004
14JUN89	20JUN89	7.03	0.024	0.003
20JUN89	27JUN89	8.39	0.038	0.005
27JUN89	05JUL89	9.54	0.035	0.004
05JUL89	11JUL89	7.47	0.046	0.006
11JUL89	18JUL89	8.59	0.036	0.004
18JUL89	25JUL89	8.33	0.042	0.005
25JUL89	01AUG89	8.31	0.040	0.005
01AUG89	07AUG89	5.43	0.032	0.006
07AUG89	15AUG89	9.45	0.023	0.002
15AUG89	22AUG89	8.58	0.036	0.004
22AUG89	29AUG89	8.62	0.032	0.004
29AUG89	05SEP89	8.47	0.042	0.005
05SEP89	12SEP89	8.40	0.037	0.004
12SEP89	19SEP89	8.24	0.041	0.005

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Rain Gage 2

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
09FEB88	16FEB88	8.44	0.028	0.003
16FEB88	23FEB88	8.36	0.031	0.004
23FEB88	01MAR88	8.49	0.034	0.004
01MAR88	08MAR88	8.17	0.037	0.005
08MAR88	15MAR88	8.43	0.033	0.004
15MAR88	22MAR88	8.39	0.034	0.004
22MAR88	29MAR88	8.54	0.035	0.004
29MAR88	05APR88	8.51	0.056	0.007
05APR88	12APR88	8.54	0.031	0.004
12APR88	19APR88	8.31	0.037	0.004
19APR88	26APR88	8.45	0.047	0.006
26APR88	03MAY88	8.71	0.051	0.006
03MAY88	10MAY88	8.49	0.045	0.005
10MAY88	17MAY88	8.63	0.060	0.007
17MAY88	24MAY88	8.65	0.082	0.010
24MAY88	31MAY88	8.48	0.110	0.013
31MAY88	07JUN88	8.63	0.100	0.012
07JUN88	14JUN88	8.61	0.130	0.015
14JUN88	21JUN88	8.24	0.103	0.013
21JUN88	28JUN88	6.13	0.059	0.010
28JUN88	05JUL88	6.39	0.050	0.008
05JUL88	12JUL88	8.37	0.067	0.008
12JUL88	19JUL88	8.76	0.136	0.016
19JUL88	26JUL88	8.87	0.121	0.014
26JUL88	02AUG88	8.84	0.062	0.007
02AUG88	09AUG88	8.86	0.052	0.006
09AUG88	16AUG88	8.88	0.117	0.013
16AUG88	23AUG88	8.85	0.052	0.006
23AUG88	30AUG88	8.96	0.074	0.008
30AUG88	06SEP88	8.76	0.038	0.004
06SEP88	13SEP88	8.83	0.053	0.006
13SEP88	20SEP88	8.70	0.040	0.005
20SEP88	27SEP88	8.98	0.055	0.006
27SEP88	04OCT88	8.85	0.053	0.006
04OCT88	11OCT88	8.64	0.028	0.003
11OCT88	18OCT88	8.75	0.041	0.005
18OCT88	25OCT88	8.81	0.027	0.003
25OCT88	01NOV88	8.73	0.028	0.003
01NOV88	08NOV88	6.27	0.022	0.004
08NOV88	15NOV88	8.66	0.027	0.003
15NOV88	22NOV88	8.68	0.029	0.003
22NOV88	29NOV88	8.62	0.031	0.004
29NOV88	06DEC88	8.64	0.022	0.003
06DEC88	13DEC88	8.61	0.036	0.004
13DEC88	20DEC88	8.61	0.020	0.002
20DEC88	27DEC88	8.88	0.037	0.004

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Rain Gage 2 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
27DEC88	03JAN89	8.53	0.030	0.004
03JAN89	10JAN89	8.54	0.023	0.003
10JAN89	17JAN89	8.63	0.025	0.003
17JAN89	24JAN89	8.71	0.065	0.008
24JAN89	31JAN89	8.55	0.033	0.004
31JAN89	07FEB89	8.63	0.020	0.002
07FEB89	14FEB89	8.63	0.013	0.002
14FEB89	21FEB89	8.62	0.023	0.003
21FEB89	28FEB89	8.63	0.020	0.002
28FEB89	07MAR89	8.62	0.032	0.004
07MAR89	14MAR89	8.68	0.053	0.006
14MAR89	21MAR89	8.59	0.029	0.003
21MAR89	28MAR89	8.65	0.007	0.001
28MAR89	04APR89	8.78	0.019	0.002
04APR89	11APR89	8.51	0.021	0.003
11APR89	18APR89	8.63	0.042	0.005
18APR89	25APR89	8.65	0.069	0.008
25APR89	02MAY89	8.72	0.032	0.004
02MAY89	09MAY89	8.55	0.026	0.003
09MAY89	16MAY89	8.71	0.023	0.003
16MAY89	23MAY89	8.73	0.032	0.004
23MAY89	30MAY89	8.81	0.033	0.004
30MAY89	06JUN89	8.86	0.031	0.003
06JUN89	15JUN89	11.40	0.050	0.004
15JUN89	20JUN89	6.31	0.021	0.003
20JUN89	27JUN89	8.89	0.050	0.006
27JUN89	04JUL89	9.38	0.050	0.005
04JUL89	11JUL89	8.56	0.049	0.006
11JUL89	18JUL89	8.75	0.068	0.008
18JUL89	25JUL89	8.79	0.054	0.006
25JUL89	01AUG89	9.01	0.063	0.007
01AUG89	08AUG89	8.81	0.043	0.005
08AUG89	15AUG89	8.79	0.074	0.008
15AUG89	22AUG89	8.86	0.051	0.006
22AUG89	29AUG89	8.86	0.057	0.006
29AUG89	05SEP89	8.86	0.046	0.005
05SEP89	12SEP89	8.85	0.058	0.007
12SEP89	19SEP89	8.88	0.047	0.005
19SEP89	26SEP89	9.01	0.116	0.013
26SEP89	03OCT89	8.77	0.029	0.003
03OCT89	10OCT89	8.88	0.061	0.007
03OCT89	10OCT89	7.81	0.056	0.007
10OCT89	17OCT89	8.89	0.078	0.009
10OCT89	17OCT89	7.94	0.072	0.009
17OCT89	24OCT89	8.81	0.038	0.004

MERCURY VAPOR IN AMBIENT AIR AT THE OAK RIDGE Y-12 PLANT

SITE=Rain Gage 2 (continued)

Start Date	Stop Date	Total Flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
17OCT89	24OCT89	7.87	0.036	0.005
24OCT89	31OCT89	8.73	0.119	0.014
24OCT89	31OCT89	7.80	0.114	0.015

APPENDIX E

**TABULATION OF RESULTS FOR PARTICULATE MERCURY
IN AMBIENT AIR (JULY 1986-APRIL 1989)**

PARTICULATE MERCURY IN AMBIENT AIR AT THE OAK RIDGE Y-12
PLANT

SITE=Ambient No. 2

Start date	Stop date	Total flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
26AUG86	23SEP86	33.40	0.0003	0.00001
23SEP86	28OCT86	42.00	0.0008	0.00002
28OCT86	25NOV86	32.80	0.0024	0.00007
25NOV86	23DEC86	33.30	0.0015	0.00005
23DEC86	27JAN87	42.90	0.0009	0.00002
27JAN87	24FEB87	34.30	<0.0010	<0.00003
24FEB87	24MAR87	33.00	<0.0010	<0.00003
24MAR87	27APR87	32.30	<0.0010	<0.00003
21APR87	19MAY87	32.50	<0.0010	<0.00003
19MAY87	16JUN87	32.90	0.0260	0.00079
16JUN87	14JUL87	33.30	<0.0010	<0.00003
14JUL87	11AUG87	33.00	0.0010	0.00003
11AUG87	08SEP87	33.60	<0.0010	<0.00003
08SEP87	06OCT87	34.20	0.0010	0.00003
06OCT87	03NOV87	34.60	0.0010	0.00003
03NOV87	01DEC87	33.60	0.0020	0.00006
01DEC87	29DEC87	33.60	0.0010	0.00003
29DEC87	27JAN88	36.26	0.0050	0.00014
27JAN88	23FEB88	33.28	<0.0020	<0.00006
23FEB88	22MAR88	33.34	<0.0020	<0.00006
22MAR88	19APR88	34.10	0.0010	0.00003
19APR88	17MAY88	33.45	<0.0010	<0.00003
17MAY88	14JUN88	34.45	0.0030	0.00009
14JUN88	12JUL88	30.93	0.0020	0.00006
12JUL88	10AUG88	32.13	<0.0010	<0.00003
10AUG88	06SEP88	28.35	<0.0020	<0.00007
06SEP88	04OCT88	28.49	<0.0020	<0.00007
04OCT88	01NOV88	29.59	<0.0010	<0.00003
01NOV88	29NOV88	29.34	<0.0020	<0.00007
29NOV88	27DEC88	30.37	<0.0010	<0.00003
27DEC88	24JAN89	29.76	0.0020	0.00007
24JAN89	21FEB89	32.97	0.0040	0.00012
21FEB89	21MAR89	33.73	<0.0010	<0.00003
21MAR89	18APR89	33.93	0.0003	0.00001

PARTICULATE MERCURY IN AMBIENT AIR AT THE OAK RIDGE Y-12
PLANT

SITE=Ambient No. 8

Start date	Stop date	Total flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
26AUG86	23SEP86	35.00	0.0006	0.00002
23SEP86	28OCT86	43.80	0.0035	0.00008
28OCT86	25NOV86	34.90	0.0038	0.00011
25NOV86	23DEC86	34.70	0.0032	0.00009
23DEC87	27JAN87	43.10	0.0025	0.00006
27JAN87	24FEB87	34.30	<0.0010	<0.00003
24FEB87	24MAR87	34.00	0.0230	0.00068
24MAR87	21APR87	34.40	0.0020	0.00006
21APR87	19MAY87	34.50	<0.0010	<0.00003
19MAY87	16JUN87	34.90	0.0050	0.00014
16JUN87	14JUL87	34.80	l.s.	l.s.
14JUL87	11AUG87	34.40	0.0020	0.00006
11AUG87	08SEP87	34.70	<0.0010	<0.00003
08SEP87	06OCT87	35.00	0.0010	0.00003
06OCT87	03NOV87	34.70	0.0040	0.00012
03NOV87	01DEC87	34.40	0.0050	0.00015
01DEC87	29DEC87	29.90	0.0020	0.00007
29DEC87	27JAN88	34.67	0.0030	0.00009
27JAN88	23FEB88	26.34	<0.0020	<0.00008
23FEB88	22MAR88	26.85	<0.0020	<0.00007
22MAR88	19APR88	25.03	0.0010	0.00004
19APR88	17MAY88	22.43	<0.0010	<0.00004
17MAY88	14JUN88	30.37	0.0010	0.00003
14JUN88	12JUL88	32.13	0.0020	0.00006
12JUL88	10AUG88	35.81	0.0020	0.00006
10AUG88	06SEP88	32.89	<0.0020	<0.00006
06SEP88	04OCT88	31.14	<0.0020	<0.00006
04OCT88	01NOV88	33.07	<0.0010	<0.00003
01NOV88	29NOV88	32.98	<0.0020	<0.00006
29NOV88	27DEC88	32.88	0.0010	0.00003
27DEC88	24JAN89	30.51	0.0020	0.00007
24JAN89	21FEB89	32.28	0.0010	0.00003
21FEB89	21MAR89	33.97	<0.0010	<0.00003
21MAR89	18APR89	33.96	0.0007	0.00002

PARTICULATE MERCURY IN AMBIENT AIR AT THE OAK RIDGE Y-12
PLANT

SITE=Building 9404-13

Start date	Stop date	Total flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
26AUG86	23SEP86	39.40	0.0058	0.00015
23SEP86	28OCT86	49.50	0.0152	0.00031
28OCT86	25NOV86	39.10	0.0072	0.00018
25NOV86	23DEC86	39.40	0.0069	0.00018
23DEC87	27JAN87	49.30	0.0150	0.00030
27JAN87	24FEB87	39.30	0.0090	0.00023
24FEB87	24MAR87	39.10	0.0080	0.00020
24MAR87	21APR87	39.00	0.0080	0.00021
21APR87	19MAY87	39.10	0.0071	0.00018
19MAY87	16JUN87	39.20	0.0050	0.00013
16JUN87	14JUL87	39.30	0.0040	0.00010
14JUL87	11AUG87	37.40	0.0130	0.00035
11AUG87	08SEP87	38.90	0.0110	0.00028
08SEP87	06OCT87	38.60	0.0070	0.00018
06OCT87	03NOV87	38.60	0.0110	0.00028
03NOV87	01DEC87	37.80	0.0110	0.00029
01DEC87	29DEC87	37.80	0.0190	0.00050
29DEC87	27JAN88	39.76	0.0040	0.00010
27JAN88	23FEB88	39.39	0.0050	0.00013
23FEB88	22MAR88	33.27	<0.0020	<0.00006
22MAR88	19APR88	37.40	0.0050	0.00013
19APR88	17MAY88	38.72	0.0030	0.00008
17MAY88	14JUN88	37.92	0.0050	0.00013
14JUN88	12JUL88	34.58	0.0290	0.00084
12JUL88	10AUG88	40.64	0.0040	0.00010
10AUG88	06SEP88	37.71	<0.0020	<0.00005
06SEP88	04OCT88	39.12	<0.0020	<0.00005
04OCT88	01NOV88	39.58	0.0020	0.00005
01NOV88	29NOV88	39.64	<0.0020	<0.00005
29NOV88	27DEC88	39.64	0.0020	0.00005
27DEC88	24JAN89	39.26	0.0020	0.00005
24JAN89	21FEB89	39.16	0.0070	0.00018
21FEB89	21MAR89	38.33	<0.0010	<0.00003
21MAR89	18APR89	38.39	0.0010	0.00003

PARTICULATE MERCURY IN AMBIENT AIR AT THE OAK RIDGE Y-12
PLANT

SITE=Building 9805-1

Start date	Stop date	Total flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
23SEP86	28OCT86	49.30	0.0047	0.00010
28OCT86	25NOV86	39.10	0.0078	0.00020
25NOV86	23DEC86	39.50	0.0145	0.00037
23DEC86	27JAN87	49.20	0.0024	0.00005
27JAN87	24FEB87	38.90	0.0030	0.00008
24FEB87	24MAR87	38.80	0.0030	0.00008
24MAR87	21APR87	38.80	0.0110	0.00028
21APR87	19MAY87	39.20	0.0040	0.00010
19MAY87	16JUN87	39.40	0.0020	0.00005
16JUN87	14JUL87	39.20	0.0030	0.00008
14JUL87	11AUG87	38.90	0.0040	0.00010
11AUG87	08SEP87	39.00	0.0030	0.00008
08SEP87	06OCT87	38.50	0.0070	0.00018
06OCT87	03NOV87	38.90	0.0140	0.00036
03NOV87	01DEC87	38.00	0.0150	0.00039
01DEC87	29DEC87	37.40	0.0090	0.00024
29DEC87	27JAN88	39.37	0.0040	0.00010
27JAN88	23FEB88	36.67	0.0030	0.00008
23FEB88	22MAR88	38.70	0.0040	0.00010
22MAR88	19APR88	37.95	0.0030	0.00008
19APR88	17MAY88	38.66	0.0020	0.00005
17MAY88	14JUN88	38.88	0.0050	0.00013
14JUN88	12JUL88	37.90	0.0040	0.00011
12JUL88	10AUG88	40.29	0.0020	0.00005
10AUG88	06SEP88	37.57	<0.0020	<0.00005
06SEP88	04OCT88	39.04	<0.0020	<0.00005
04OCT88	01NOV88	38.87	0.0010	0.00003
01NOV88	29NOV88	39.41	<0.0020	<0.00005
29NOV88	27DEC88	39.37	0.0020	0.00005
27DEC88	24JAN89	38.96	0.0020	0.00005
24JAN89	21FEB89	38.22	0.0020	0.00005
21FEB89	21MAR89	37.61	<0.0010	<0.00003
21MAR89	18APR89	37.23	0.0007	0.00002

PARTICULATE MERCURY IN AMBIENT AIR AT THE OAK RIDGE Y-12
PLANT

SITE=New Hope Pond

Start date	Stop date	Total flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
25AUG87	08SEP87	25.10	0.0060	0.00024
08SEP87	06OCT87	35.30	0.0040	0.00011
06OCT87	03NOV87	35.50	0.0090	0.00025
03NOV87	01DEC87	35.20	0.0150	0.00043
01DEC87	29DEC87	35.00	0.0080	0.00023
29DEC87	27JAN88	35.44	0.0090	0.00025
27JAN88	23FEB88	32.96	0.0110	0.00033
23FEB88	22MAR88	32.47	0.0110	0.00034
22MAR88	19APR88	33.65	0.0170	0.00051
19APR88	17MAY88	33.35	0.0070	0.00021
17MAY88	14JUN88	34.26	0.0100	0.00029
14JUN88	12JUL88	24.28	0.0200	0.00082
12JUL88	10AUG88	34.80	0.0080	0.00023
10AUG88	06SEP88	32.11	0.0040	0.00012
06SEP88	04OCT88	33.33	<0.0020	<0.00006
04OCT88	01NOV88	33.03	0.0250	0.00076
01NOV88	29NOV88	33.02	<0.0020	<0.00006
29NOV88	27DEC88	31.87	0.0020	0.00006
27DEC88	24JAN89	33.10	0.0010	0.00003
24JAN89	21FEB89	33.14	0.0010	0.00003
21FEB89	21MAR89	33.04	<0.0010	<0.00003
21MAR89	18APR89	32.08	0.0003	0.00001

PARTICULATE MERCURY IN AMBIENT AIR AT THE OAK RIDGE Y-12
PLANT

SITE=Rain Gauge 2

Start date	Stop date	Total flow (m ³)	Analyte Hg (μg)	Average Hg (μg/m ³)
09FEB88	23FEB88	16.80	<.0020	<0.00012
23FEB88	22MAR88	33.49	<.0020	<0.00006
22MAR88	19APR88	33.89	0.0010	0.00003
19APR88	17MAY88	34.28	<.0010	<0.00003
17MAY88	14JUN88	34.37	0.0010	0.00003
14JUN88	12JUL88	29.13	0.0020	0.00007
12JUL88	09AUG88	35.34	<.0010	<0.00003
09AUG88	06SEP88	35.46	<.0020	<0.00006
06SEP88	04OCT88	35.35	<.0020	<0.00006
04OCT88	01NOV88	34.94	<.0010	<0.00003
01NOV88	29NOV88	32.23	<.0020	<0.00006
29NOV88	27DEC88	34.75	<.0010	<0.00003
27DEC88	24JAN89	34.42	l.s.	l.s.
24JAN89	21FEB89	34.43	0.0020	0.00006
21FEB89	21MAR89	34.54	<.0010	<0.00003
21MAR89	18APR89	34.59	<.0001	<0.00001

l.s.=lost sample

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Clotfelter, O. K.

Heiskell, J. E.

Y-12 Plant

Keyes, J. E./DOE-OSTI (4)

Lee, A. K.

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